



The use of MASS in the context of International Law of the Sea

Daniele Mandrioli

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THÈSE DE DOCTORAT

Nouvelles technologies dans le droit de la mer

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Nouvelles technologies dans le droit de la mer

Maritime Autonomous Surface Ships and International Law

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Titre Nouvelles technologies dans le droit de la mer

L'automatisation et la numérisation redéfinissent l'ergonomie des comportements humains. En se limitant au domaine maritime, les nouvelles technologies permettent d'automatiser entièrement l'activité traditionnelle de la navigation ; aujourd'hui, les navires peuvent être contrôlés depuis le rivage et l'intervention humaine dans la boucle de décision n'est plus nécessaire.

Cette innovation disruptive offre de grandes opportunités pour l'industrie maritime. Intuitivement, les profits tirés du transport de marchandises et de personnes en mer peuvent être maximisés ; la réduction ou l'absence d'équipage à bord entraîne une réduction considérable des coûts pour les opérateurs (et pour les consommateurs), surtout en cette période historique marquée par la propagation mondiale du virus SARS-COV-2. En ce qui concerne la sécurité maritime, l'innovation que constitue le contrôle autonome réduit fortement le risque d'accidents dus à des erreurs humaines, qui sont à l'origine de la plupart des accidents maritimes. En ce qui concerne la protection de l'environnement marin, la navigation autonome peut en outre rendre le transport maritime plus durable.

Pour ces raisons, les États et les entités privées financent plusieurs projets de développement de navires autonomes : au cours des dernières années, les premiers navires de surface autonomes (ci-après dénommés MASS) ont été testés et produits. En l'état actuel des connaissances, l'adoption de cette nouvelle technologie n'est plus un événement futuriste : plus d'un millier de MASS naviguent actuellement sur les océans du monde.

Étant donné que l'activité humaine de la navigation est sujette à des changements, on peut se demander si les règles internationales qui la régissent sont d'une certaine manière remises en question par l'essor de l'automatisation.

Habituellement, une nouvelle invention technologique s'accompagne de nombreuses questions réglementaires. D'une part, la loi est tenue de contrôler et de prévenir les conséquences involontaires découlant du recours à la nouvelle technologie. D'autre part, la loi est appelée à admettre et à autoriser son utilisation.

Par conséquent, l'objectif de cette thèse est d'étudier les implications juridiques internationales découlant de l'utilisation croissante des moyens autonomes de transport maritime. En quelques mots, il s'agit ici d'aborder la question de savoir si et comment le recours à la technologie MASS a un impact sur le cadre juridique international préexistant qui régit l'exécution de la navigation et le contrôle de l'État sur celle-ci.

Au cours des dernières années, ce sujet a suscité une attention croissante. En particulier, en 2019, le Comité de la sécurité maritime de l'OMI (MSC) a approuvé les "Directives provisoires pour les essais de navires autonomes de surface (MASS)".

En outre, l'Organisation a très récemment achevé le "Regulatory Scoping Exercise on Maritime Autonomous Surface Ships" (ci-après RSE), qui avait débuté trois ans auparavant.

La recherche proposée veut s'inscrire dans ce débat ouvert (et le dépasser) afin de fournir un panorama étendu des implications juridiques internationales émergeant de l'utilisation de l'automatisation et du contrôle dans le domaine maritime. Ce faisant, l'attention se concentrera sur trois blocs normatifs : les règles internationales sur la sécurité de la navigation (chapitre I), les règles internationales régissant l'attribution de la juridiction des États sur les navires (chapitre II) et les règles internationales traitant de l'assistance aux personnes trouvées en détresse en mer (chapitre III).

Mots clés : MASS – Navires – Droit de la mer

Title : Maritime Autonomous Surface Ships and International Law

Abstract

Automation and digitalization redefine the ergonomics of human behaviours. With limited reference to the maritime field, new technologies allow to fully automatize the traditional activity of navigation; nowadays, ships can be controlled from shore and human involvement in the decision-making loop is no longer necessary.

This disruptive innovation offers big opportunities for the shipping industry. Intuitively, the profits from the transport of goods and people at sea may be highly maximised; the reduction/absence of crew on board results in huge business costs reduction for operators (and for consumers as well) especially in this historical period, burdened by the global spread of the SARSCOV-2 virus . In terms of maritime safety, then, the innovation of autonomous control sharply reduces the risk of casualties deriving from human mistakes, the most frequent origin of maritime accidents . For what concerns the protection of the marine environment, furthermore, autonomous navigation can make the transport at sea more sustainable .

For the above reasons, States and private entities are both financing several projects for developing autonomous vessels: in the last few years, the first Maritime Autonomous Surface Ships (hereinafter MASS) have been tested and produced. At the state of art, the adoption of this new technology is not a futuristic event anymore: actually, there are more than one thousand MASS navigating in the world's oceans .

Since the human activity of navigation is subject to change, one may wonder whether the international rules dealing with it are somehow challenged by the rise of automation.

Usually, a new technological invention brings with it many regulatory issues. On the one hand, the law is required to control and prevent unintended consequences arising from the recourse to the new technology. On the other hand, the law is called to admit and authorize its use.

Accordingly, the goal of this thesis is to investigate the international legal implications arising from the fast-growing use of autonomous means of maritime transport. In few words, it is here intended to address the question of whether and how the recourse to MASS technology impacts on the pre-existing international legal framework regulating the performance of navigation and the State control over it.

Over the last few years, this topic has gained increasing attention. In particular, in 2019 the IMO Maritime Safety Committee (MSC) approved the “Interim guidelines for Maritime Autonomous Surface Ships (MASS) trials”.

In addition , the Organization has very recently concluded the “Regulatory Scoping Exercise on Maritime Autonomous Surface Ships” (hereinafter RSE), which was started three years before. The proposed research wants to fit into this open debate (and go beyond it) in order to provide an extended panoramics of the international legal implications emerging from the use of automation and control in the maritime field. In so doing, the attention will be focused on three normative blocks: the international rules on safety of navigation (Chapter I), the international rules regulating the allocation of State jurisdiction over ships (Chapter II) and the international rules dealing with the assistance to people found in distress at sea (Chapter III).

Keywords : MASS – Ships – Law of the sea

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LIST OF ABBREVIATIONS

ACHPR	African Charter on Human and Peoples' Rights
ACHR	American Convention on Human Rights
CMI	Comité Maritime International
CLC	Convention on Civil Liability for Bunker Oil Pollution Damage
COLREGs	Convention on the International Regulations for Preventing Collisions at Sea
ECHR	European Convention on Human Rights
ECtHR	European Court of Human Rights
EEZ	Exclusive Economic Zone
EU	European Union
FSJ	Flag State Jurisdiction
HRC	Human Rights Committee
IACHR	Inter-American Court of Human Rights
IAMSAR	International Aeronautical and Maritime Search and Rescue Manual
ICCPR	International Covenant on Civil and Political Rights
ICESCR	International Covenant on Social and Cultural Rights
ILA	International Law Association
ICJ	International Court of Justice
ILC	International Law Commission
ILO	International Labour Organization
IMCO	Inter-governmental Consultative Organization
IMO	International Maritime Organization
IUU	Illegal, Unreported and Unregulated
LLMC	Load Lines Maritime Convention
ITLOS	International Tribunal on the Law of the Sea
MARPOL	International Convention for the Prevention of Pollution from Ships
MASS	Maritime Autonomous Surface Ships
MEPC	Marine Environment Protection Committee
MLC	Maritime Labour Convention
MODU	Mobile Offshore Drilling Unit
MSC	Maritime Safety Committee
PCA	Permanent Court of Arbitration
PCIJ	Permanent Court of International Justice
POS	Place of Safety
RCC	Rescue Coordination Centre
RSE	Regulatory Scoping Exercise
SAR	Search and Rescue

SOLAS	Safety of Life at Sea
STCW	Standard of Training, Certification and Watchkeeping
UDHR	Universal Declaration on Human Rights
UK	United Kingdom
UN	United Nations
UNGA	United Nations General Assembly
UNICPOLOS	Open-ended Informal Consultative Process on Ocean Affairs and Law of the Sea
UNCLOS	United Nations Convention on the Law of the Sea
UNCTAD	United Nations Conference on Trade And Development
UNTOC	United Nations Convention on Transnational Crimes
US	United States of America
VCLT	Vienna Convention on the Law of Treaties

INTRODUCTION

SUMMARY: 1. Research Question – 2. The rise of automation and control in the shipping industry – 3. MASS commercial ships: four different degrees of automation – 4. Adopted approach and Methodology of work – 5. Structure of the work.

1. Research Question

Automation and digitalization redefine the *ergonomics*¹ of human behaviours. With limited reference to the maritime field, new technologies allow to fully automatize the traditional activity of navigation; nowadays, ships can be controlled from shore and human involvement in the decision-making loop is no longer necessary.

This disruptive innovation offers big opportunities for the shipping industry. Intuitively, the profits from the transport of goods and people at sea may be highly maximised; the reduction/absence of crew on board results in huge business costs reduction for operators (and for consumers as well)² especially in this historical period, burdened by the global spread of the SARSCOV-2 virus³. In terms of maritime safety, then, the innovation of autonomous control sharply reduces the risk of casualties deriving from human mistakes, the most frequent origin of maritime accidents⁴. For

¹ For the purposes of this research, the science of “ergonomic” is defined as the discipline «concerned with the understanding of the interactions among humans and other elements of a system, and the profession that applies theory, principles, data and methods to design in order to optimize human well being and overall system performance». This definition is officially given by the International Ergonomics Association (reported in GRECH M. R.; HORBERRY T. J.; KOESTER T., *Human Factor in the Maritime Domain*, London, 2008, p. 11).

² In this regard, see GLENN WRIGHT R., *Unmanned and Autonomous Ships*, cit., p. 23-27; Report on BIMCO Autonomous Ships Seminar, NUS, Centre for Maritime Law, 2019, p. 14; GU Y.; GOEZ J.; GUAJARDO M.; WALLACE S., *Autonomous Vessels: State of the Art and Potential Opportunities in Logistics*, NHH Dept. of Business and Management Science Discussion, 2019; KAZEM A.; HESHAM H., *Autonomous Surface Ships, In View of Existing Legislation, and the Need for a New Governance*, The International Maritime Transport & Logistics Conference (MARLOG 7), 2018; UNCTAD, *Review of Maritime Transport*, New York, 2018, p. 90-92.

³ For an extensive panoramic about the consequences brought by the COVID-19 pandemic in the maritime society (and in particular in the EU), see MUNARI F., *Pandemic and Port Operations in the EU, Il Diritto Marittimo*, 2021, p. 292-319.

⁴ BERG N.; STORGARD J.; LAPPALAINEN J., *The Impact of Ship Crews on Maritime Safety*, Centre for Maritime Studies University of Turku, 2013, p. 35; GRECH M. R.; HORBERRY T. J.; KOESTER T., *Human Factor in the Maritime Domain*, cit., p. 17-18; The Autonomous Revolution, at <https://maritime-executive.com/features/the-autonomousrevolution>, 20 September 2019.

what concerns the protection of the marine environment, furthermore, autonomous navigation can make the transport at sea more sustainable⁵.

For the above reasons, States and private entities are both financing several projects for developing autonomous vessels: in the last few years, the first *Maritime Autonomous Surface Ships* (hereinafter MASS) have been tested and produced. At the state of art, the adoption of this new technology is not a futuristic event anymore: actually, there are more than one thousand MASS navigating in the world's oceans⁶. At this point, therefore:

«The question [...] is no longer whether the turn to automation in shipping takes place, but rather at what pace and in what form it will occur»⁷.

Since the human activity of navigation is subject to change, one may wonder whether the international rules dealing with it are somehow challenged by the rise of automation⁸.

⁵ ZANELLA T., *The environmental impacts of the "maritime autonomous surface ships" (MASS)*, Veredas do Direito, 2020, p. 381.

⁶ *Autonomous Vessels are Becoming a Commercial Reality*, The Maritime Executive, 24 September 2021. More recently, see *La nave del future viaggia da sola (e non inquina)*, Repubblica, 14 October 2021.

⁷ PETRIG A., *Autonomous Offender Ships and International Maritime Security Law*, cit., p. 31. On the same advice, see VOJKOVIC G.; MILENKOVIC M., *Autonomous Ships and Legal Authorities of the Ship Master*, cit., p. 335. Interestingly, in 1967, Johnston anticipated that: «no doubt, navigation will become automatic with traffic passing buoy to buoy like guide missiles». (JOHNSTON D., *Law, Technology and the Sea*, California Law Review, 1967, p. 454).

⁸ In this regard, several scholars have started addressing the same topic as well. Among others, see BUTT, M.; CHANG, Y., *Regulation of Autonomous Maritime Weapon Systems under the Governance Framework of International Law*, in ZOU K.; TELESTKY A. (eds.), *Marine Scientific Research, New Marine Technologies and the Law of the Sea*, Leiden, 2021, p. 105-126; ZOU L.; XING R., *Developments of Unmanned and Autonomous Merchant Ships*, in ZOU K.; TELESTKY A. (eds.), *Marine Scientific Research, New Marine Technologies and the Law of the Sea*, Leiden, 2021, p. 127-152; COITO J., *Maritime Autonomous Surface Ships. New Possibilities – and Challenges – in Ocean Law and Policy*, International Law Studies, 2021, p. 259-30; ZHU L.; XING W., *Policy-Oriented analysis on the Navigational Rights of Unmanned Merchant Ships*, Maritime Policy & Management, 2021, p. 1-16; RINGBOM H.; RØSÆG E.; SOLVANG T., (eds.), *Autonomous Ships and the Law*, New York, 2020; GLENN WRIGHT R., *Unmanned and Autonomous Ships*, cit., p. 189-238; RINGBOM H., *Legalizing Autonomous Ships*, Ocean Yearbook Online, Vol. 34, Issue 1, 2020, p. 429-460; CALIGIURI A., *A New International Legal Framework for Unmanned Maritime Vehicles?*, in CALIGIURI A. (ed.), *Legal Technology Transformation. A Practical Assessment*, Napoli, 2020, p. 99-109; MANDRIOLI D., *The International Duty to Assist People in Distress at Sea in the Era of Unmanned Navigation: No Place for People On Board*, Humanidades & Tecnologia, 2020; YANG T., *Intelligent Ships*, in MUKHERJEE P.; MEJIA M.; XU J. (eds.), *Maritime Law in Motion*, Cham, 2020, p. 703-711; SICCARDI F., *Le navi autonome. Maritime Autonomous Surface Ships*, Il Diritto Marittimo, 2019, p. 848-862; VEAL R.; TSIMPLIS M.; SERDY A., *The Legal Status and Operation of Unmanned Maritime Vehicles*, Ocean Development & International Law, 2019, p. 23-48; Z. PIETRZYKOWSKI; J. HAJDUK, *Operations of Maritime Autonomous Surface Ship*, The

Usually, a new technological invention brings with it many regulatory issues. On the one hand, the law is required to control and prevent unintended consequences arising from the recourse to the new technology. On the other hand, the law is called to admit and authorize its use. With specific regard to MASS, dr. Liu, the former Vice President of the American Bureau of Shipping, has noted that:

International Journal on Marine Navigation and Safety of Sea Transportation, 2019, p. 725; LI RUI, *On the Legal Status of Unmanned Ships*, China Oceans Law Review, 2019, p. 165-190; KLEIN N.; GUILFOYLE D.; KARIM M. S.; MCLAUGHLIN R., *Maritime Autonomous Vehicles: New Frontiers in the Law of the Sea*, International and Comparative Law Quarterly, 2020, p. 719-734; CHADWICK K., *Unmanned Maritime Systems Will Shape the Future of Naval Operations: Is International Law Ready?*, in EVANS M.; GALANI S. (eds.), *Maritime Security and the Law of the Sea: Help or Hindrance?*, Cheltenham, 2020; YOO J.; GOERLANDT F.; CHIRCOP A., *Unmanned Remotely Operated Search and Rescue Ships in the Canadian Arctic: Exploring the Opportunities, Risk Dimensions and Governance Implications*, in CHIRCOP A.; GOERLANDT F.; APORTA C.; PELOT R.(eds.), *Governance in Arctic Shipping*, Springer, 2020, p. 83-104; BAUGHEN S., *Who is the master now?*, in SOYER B.; TETTENBORN A. (ed.), *New Technologies, Artificial Intelligence and Shipping Law in the 21st Century*, London, 2019, p. 129-147; CHIRCOP A., *Maritime Autonomous Surface Ships in International Law: New Challenges for the Regulation of International Navigation and Shipping*, Cooperation and Engagement in the Asia-Pacific Region, 2019, p. 18-32; KLEIN N., *Maritime Autonomous Vehicles within International Law Framework to Enhance Maritime Security*, International Law Studies, 2019, p. 244-271; PETRIG A., *The Commission of Maritime Crimes with Unmanned Systems: An Interpretative Challenge for UNCLOS*, in EVANS M.; GALANI S., *Maritime Security and the Law of the Sea: Help or Hindrance?*, Northampton, 2019; RINGBOM H., *Regulating Autonomous Ships – Concepts, Challenges and Precedents*, cit.; KAZEM A.; HESHAM H., *Autonomous Surface Ships, In View of Existing Legislation, and the Need for a New Governance*, cit.; CHIRCOP A., *Testing International Legal Regimes: The Advent of Automated Commercial Vessels*, German Yearbook of International Law, 2018; DAUM O., *The Implications of International Law on Unmanned Naval Craft*, Journal of Maritime Law & Commerce, 2018, p. 71-103; KARLIS T., *Maritime Law Issues Related to the Operation of Unmanned Autonomous Cargo Ships*, WMU Journal of Maritime Affairs, 2018, p. 119-128; EDER B., *Unmanned Vessels: Challenges Ahead*, Inaugural Francesco Berlinghieri Lecture, CMI, 2018; J. DELGADO, *The Legal Challenges of Unmanned Ships in the Private Maritime Law: What Laws would You Change?*, Port, Maritime and Transport Law between Legacies of the Past and Modernization, 2018; CAREY L., *All Hands off Deck? The Legal Barriers to Autonomous Ships*, NUS Centre for Maritime Law, 2017; VEAL R.; TSIMPLIS M., *The Integration of Unmanned Ships into the Lex Maritima*, Lloyd's Maritime and Commercial Law Quarterly, 2017, p. 303- 335; VEAL R.; RINGBOM H., *Unmanned Ships and the International Regulatory Framework*, cit.; CHWEDCZUK M., *Analysis of the Legal Status of Unmanned Commercial Vessels in U.S. Admiralty Law and Maritime Law*, Journal of Maritime Law & Commerce, 2016, 123-169; HOGG T.; GHOSH S., *Autonomous Merchant Vessels: Examination of Factors that Impact the Effective Implementation of Unmanned Ships*, Australian Journal of Maritime & Ocean Affairs, 2016, p. 206-222; VON HEINEGG W. H., *The Exasperating Debate on the Legality of Unmanned Systems – Time for a Realistic Approach*, in CH. CALLIESS, *Herausforderungen an Staat und Verfassung. Völkerrecht – Europarecht – Menschenrechte. Liber Amicorum Torsten Stein zum 70. Geburtstag*, Baden-Baden 2015, 142-159; PRITCHETT, P. W., *Ghost ships: Why the law should embrace unmanned vessel technology*, Tulane Maritime Law Journal, 40(1), 2015, p. 197-226; VALLEJO D., *Electric Currents: Programming Legal Status into Autonomous Unmanned Maritime Systems*, Case Western Reserve Journal of International Law, 2015, p. 405-428; VAN HOOYDONK H., *The Law of Unmanned Merchant Shipping - An Exploration*, Journal of International Maritime Law, 2014, p. 402-423. NORRIS A., *Legal Issues Relating to Unmanned Maritime Systems Monograph*, (unpublished manuscript), 2013.

«Even if the technology is perfected, companies are not going to use remote and autonomous ships unless the laws are changed to allow them to operate»⁹.

Accordingly, the goal of this thesis is to *investigate the international legal¹⁰ implications arising from the fast-growing use of autonomous means of maritime transport*. In few words, it is here intended to address the question of whether and how the recourse to MASS technology impacts on the pre-existing international legal framework regulating the performance of navigation and the State control over it.

Over the last few years, this topic has gained increasing attention. In particular, in 2019 the IMO Maritime Safety Committee (MSC) approved the “Interim guidelines for Maritime Autonomous Surface Ships (MASS) trials”, in order to:

«[...] assist relevant authorities and relevant stakeholders with ensuring that the trials of MASS related systems and infrastructure are conducted safely, securely and with due regard for protection of the environment»¹¹.

In addition, the Organization has very recently concluded the “*Regulatory Scoping Exercise on Maritime Autonomous Surface Ships*”¹² (hereinafter RSE), which was started three years before¹³. This work provides:

⁹ LIU D., *Autonomous Vessel Technology, Safety, and Ocean Impacts*, in *The Future of Ocean Governance and Capacity Development, Essays in Honour of Elysabeth Mann Borghese*, Leiden, 2018, p. 494. On a similar advice, see IMO Resolution A.1110(30), Strategic Plan for the Organization for the Six-Year Period 2018 to 2023, adopted on 6 December 2017 (Agenda item 7), p. 6: «As technological development accelerates, new and advancing technologies will significantly affect shipping, creating a more interconnected and efficient industry more closely integrated with the global supply chain. New and advancing technologies have already brought about changes at all levels in the way ships are designed, constructed, equipped and operated, and have had equal impact on personnel, both on board and on shore. Such technologies may also provide access to a large amount of data associated with shipping».

¹⁰ Intuitively, the use of MASS poses many non-legal challenges. Primarily, there are technical and engineering concerns. Then, the process of automatization gives birth to relevant economic implications. Furthermore, even the consequences in the maritime labour market are highly prospected. Due to their non-legal nature, this thesis will not address these issues. For a holistic analysis of the implications emerging from the use of MASS, see GLENN WRIGHT R., *Unmanned and Autonomous Ships. An Overview of MASS*, New York, 2020.

¹¹ MSC.1/Circ.1604, Interim Guidelines for MASS Trials, 14 June 2019. As noted by Ringbom, this soft law instrument seems to allow the operations of MASS in internal waters for very limited trials; however, it opens up to «bear some legal relevance for longer-term operation of MASS». (RINGBOM H., *Developments, Challenges and Prospects at the IMO*, in RINGBOM H.; RØSÆG E.; SOLVANG T., (eds.), *Autonomous Ships and the Law*, New York, 2020, p. 62).

¹² MSC.1/Circ.1638, Outcome of the Regulatory Scoping Exercise for the use of Maritime Autonomous Surface Ships (MASS), 3 June 2021 (hereinafter IMO RSE). For a relevant analysis of this «informal» legal instrument, see PETRIG A., *Unconventional Law for Unconventional Ships? The Role of Informal Law in the International Maritime Organization's Quest to Regulate Maritime Autonomous Surface Ships*, in KLEIN N. (ed.), *Unconventional Lawmaking in the Law of the Sea*, Oxford, 2021 (forthcoming).

«the assessment of the degree to which the existing regulatory framework under its purview might be affected in order to address MASS operations»¹⁴.

The proposed research wants to fit into this open debate (and go beyond it) in order to provide an extended panoramics of the international legal implications emerging from the use of automation and control in the maritime field. In so doing, the attention will be focused on three normative blocks: the international rules on safety of navigation (Chapter I), the international rules regulating the allocation of State jurisdiction over ships (Chapter II) and the international rules dealing with the assistance to people found in distress at sea (Chapter III).

2. The rise of automation and control in the shipping industry

Due to the advent of the digitalization of communications¹⁵, many fields of the transport of goods and people have been already innovated by the technology of “automation”¹⁶. With this term, the author refers to all the:

«[...] processes and systems i.e. mechanical devices or electronic devices, which are often computerized and that execute certain operations by a specific method *without human control*»¹⁷.

Notoriously, a primordial use of automation technologies in shipping is not a recent novelty: specific seafaring activities have been already automatized for many years¹⁸.

¹³ IMO, MSC 99/5, Regulatory Scoping Exercise for the use of Maritime Autonomous Surface Ships (MASS), 13 march 2018.

¹⁴ IMO RSE, p. 1.

¹⁵ In World Maritime University, *Transport 2040: Automation, Technology, Employment - The Future of Work*, 2019, *Reports*. 58, p. 7, the word “digitalization” is defined as «the process of introducing digital components into systems and processes thereby enhancing or replacing physical components by electronic systems».

¹⁶ See Global Marine Technology Trend, 2020, available online on the link https://globalmaritimehub.com/wp-content/uploads/attach_696.pdf

¹⁷ This is the definition given by RØDSETH and NORDAHL, 2017, reported in In World Maritime University, *Transport 2040: Automation, Technology, Employment*, cit. p. 7 (emphasis added).

However, the truly innovative element characterizing this historical period is the high level of automation reached *through the process of digitalization*¹⁹, which allows controlling the ship in a very innovative way: in the most advanced cases, the ship can be fully autonomous, without the presence of people on board.

To better explain this technological revolution, *Lloyd's Register*, a well-known UK classification society, has set a scale of definitions of the autonomy degrees potentially achievable by ships in the contemporary age²⁰. According to this classification, nowadays the shipping industry can configure extremely high levels of automation, by which:

«the ship is controlled and operated from another location» and, in some cases, «the operating system of the ship is able to make decisions and determine actions by itself»²¹.

In the last few years, States and private entities, driven by significant economic perspectives, are both paying close attention to this technological advancement²².

Just to provide few examples, with regard to private companies, Rolls Royce announced and started implementing a massive plan for the production of ships based on autonomous systems²³. Then, the Norwegian company Kongsberg and the Finnish Wärtsilä have already invested in this market too. Moreover, other important business players have constituted *One Sea*²⁴, an international joint venture, with the aim to:

¹⁸ GLENN WRIGHT R., *Unmanned and Autonomous Ships*, cit., p. 6-8; LUCCHINI L.; VOELCKEL M., *Droit de la mer*, tome 2, vol.2 Paris, 1990, p. 11; ANDERSON E. W., *A philosophy of Navigation*, J. Inst. Navigation, 1961, 1-13; MAJIENDIE A. M. A., *The display and Use of Navigational Intelligence*, cit., p. 1-13. For a detailed analysis on this classification, see RINGBOM H.; COLLIN F., *Terminology and Concepts*, cit., p. 12-15.

¹⁹ See note **Error! Bookmark not defined.** of this chapter.

²⁰ This scheme is reported in MSC 99-INF.3 - Final Report Analysis of Regulatory Barriers to the use of Autonomous Ships (Denmark), 18 January 2018, p. 4. In this regard, it is important to stress that there are many different formulations and classifications concerning the scale of levels of automation. This issue has been considered by the IMO as one of the most important challenges to preliminary solve before addressing the international regulation of the use of MASS (IMO RSE, p. 9). In scholarship, see SERDY A., TSIMPLIS M, VEAL R. *et al*, *Liability for Operation in Unmanned Maritime Vehicles with Differing Levels of Autonomy*, European Defence Agency, Brussels, 2016.

²¹ Following the statements of Lloyd's, these definitions are adopted in the IMO RSE (see p.3-4).

²² For a panoramic, see GLENN WRIGHT R., *Unmanned and Autonomous Ships*, cit., p. 9-12.

²³ AAWA, *Remote and Autonomous, Ships: The Next Steps*, 2016. More recently, Rolls-Royce and the national Finland ferry operator have realized *Falco*, a fully autonomous ferry. See Rolls-Royce and Finferries Demonstrate World's First Fully Autonomous Ferry, 3 December 2018 ([https:// www.rolls-royce.com/media/press-releases/2018/03-12-2018-rr-and-finferries-demonstrate-world-first-fully-autonomous-ferry.aspx](https://www.rolls-royce.com/media/press-releases/2018/03-12-2018-rr-and-finferries-demonstrate-world-first-fully-autonomous-ferry.aspx)).

²⁴ For all the information about *One Sea*, visit the website www.oneseaecosystem.net.

«lead the way towards an operating autonomous maritime ecosystem by 2025»²⁵.

Concerning public investments, Asian and North European countries are at the vanguard in implementing this new technology. States like China, Singapore, North Korea, Japan, Norway, Denmark and the United Kingdom are investing huge resources to adapt their ports and facilities to the use of these new means of transport²⁶. At the same time, they have also started to take the very first steps towards national regulation on the use of ships controlled through automation²⁷.

The progressive rise of automation in the maritime field is getting growing attention. In the author's view, the highly innovative features and peculiarities of MASS justify the opinion according to which the adoption of autonomous systems has to be considered not just as a mere evolution, but as a pivotal *revolution* in the maritime field²⁸. Before automation, indeed, navigation has always required the presence of seafarers on board the ship. Even if previous technological innovations and devices – such as, for example, the use of radar – have influenced and changed the ergonomics of navigation, none of them was able to revolutionize it in such a disruptive way as automation is now doing²⁹. In prof. Petrig's words:

²⁵ Ibid.

²⁶ ABB to bring autonomous technology to the Port of Singapore, ABB news, 21 October 2019; Gov.uk, 23 October 2019; Artificial intelligence ship technology to be trialled in Portland Harbour, Dorset Echo, 29 October 2019; Test site to help develop autonomous ship work, South Korea embarks on ambitious autonomous ship project, The Korea Herald, 30 October 2019; Seatrade Maritime News, China's first autonomous cargo ship makes maiden voyage, 16 December 2019; China's First "Unmanned" Container Ship Opens! Currently, the world's largest intelligent navigation ship is under construction, E-Ports, 19 May 2020. In scholarship, see MUNARI F., *Pandemic and Port's Operations in the EU: a Legal Analysis*, Il Diritto Marittimo, 2021, p. 310.

²⁷ Just to provide some examples, see Japan Ship Technology Research Association (JSTRA), Regulatory Barriers and Possible Solutions for the use of Maritime Autonomous Surface Ships (MASS), March, 2018; Danish Maritime Authority Report, Analysis of Regulatory Barriers to the Use of Autonomous Ships, December 2017; Norwegian Forum for Autonomous Ships, Definitions for Autonomous Merchant Ships, 2017; Finnish Pilotage Act, amendments up to 51/2019 included, 2019; Maritime UK, Maritime Autonomous Surface Ships UK Code of Practice, 2019.

²⁸ RØSÆG E., *Diabolus ex Machina: When and Autonomous Ship Does the Unexpected*, in RINGBOM H.; RØSÆG E.; SOLVANG T., (eds.), *Autonomous Ships and the Law*, New York, 2020, p. 127-134; NAWROTP J; PEŁOWSKA-DĄBROWSKA Z., *Revolution or Evolution? Challenges Posed by Autonomous Vessels for the National and International Legal Framework*, Comparative Law Review, 2019, p. 239- 255.

²⁹ It is interesting to note here that none of every previous technological installation was so disruptive to re-define the feature of the ships also from a *semantical* point of view, like automation is doing. Indeed, before automation, every new technology has always been conceived just as mere "aids to

«If there is but one truism throughout the thousands of years of maritime history, it is that ships have persons on board – that they are manned. This certainty has come to an end with the arrival of unmanned ships plying the seas and oceans – and they are no longer a mere glimpse of the future»³⁰.

Moreover, before automation, the human activity of navigation has always been perceived as mechanical and manual control over the ship. Today, instead, recent technological developments allow the serving of *remote operability*³¹. Due to this technological advancement, the “actors” of navigation mainly carry out *supervisory works*: they monitor the smooth running of automated operations³². Furthermore, supervision activities do not have necessarily to be conducted on board the ship because, due to the digitalization of information, they can be equally performed *from shore*³³.

Accordingly, the human involvement in navigation is going through a strong period of change. While the “traditional” figures of maritime operators tend to disappear, new figures arise³⁴: the control of unmanned and autonomous ships is more and more delegated to *remote operators*, whose job duties largely differ from those of traditional seafarers. Their contribution in the control and management of the ship is highly innovative, simply considering that they do not operate on board³⁵. To highlight even

navigation”, namely: «[...] a device, external to a vessel, chartered or otherwise published, serving the interests of safe navigation». In this regard, see WALKER G.K., *Definitions for the Law of the Sea: Terms not Defined by the 1982 Law of the Sea Convention*, Leiden, 2011, p. 89.

³⁰ PETRIG A., *Unmanned offender and enforcer vessels and the multi-dimensional concept of ‘ship’ under the United Nations Convention on the Law of the Sea*, in SIIG K.; BILLING F.; FELDTMANN B. (eds), *UNCLOS as a System of Regulation*, New York, 2021 (forthcoming).

³¹ RINGBOM H.; COLLIN F., *Terminology and Concepts*, cit., p. 9: «ship’s technical capability that permits a human operator to monitor and control the vessel remotely, either from another ship or from shore».

³² GLENN WRIGHT R., *Unmanned and Autonomous Ships*, cit., p. 18: «Rather than automation drastically reducing the number of available maritime jobs, the advent of MASS should serve to increase maritime jobs by expanding opportunities into technical fields that will supplement the traditional maritime professions».

³³ KIM, T.; MALLAM S., *A Delphi-AHP study on STCW leadership competence in the age of autonomous maritime operations*, WMU Journal of Maritime Affairs, 2020, p. 163-181.

³⁴ Antonio Gueterres, Address to the General Assembly of the United Nations, 28 September 2018: «Technological advances may disrupt labour markets as traditional jobs change or disappear, even as the number of young job-seekers continues to grow. Re-training will be needed at previously unimaginable scale» (available online at www.un.org/sg/en/content/sg/speeches/2018-09-25/address-73-general-assembly).

³⁵ See World Maritime University, *Transport 2040: Automation, Technology, Employment*, cit.; GU Y.; GOEZ J.; GUAJARDO M.; WALLACE S., *Autonomous Vessels: State of the Art and Potential Opportunities in Logistics*, NHH Dept. of Business and Management Science Discussion, 2019.

more this novelty, it is interesting to note that some insiders have coined the neologism “*e-farer*”³⁶; the recourse to this new term reveals, even more, the distance between autonomous navigation compared to the traditional one.

3. **MASS commercial ships: four different degrees of automation**

Automation and remote control technologies set a new mode of interaction between humans and the marine domain. With the expression “human activity”, the present research refers to every physical happening deriving from conscious human involvement. Men and women, through their intelligence and physical force, are able to interact with other elements of a determinate system, in order to fulfil a specific task.

This technological advancement potentially innovates the performance of every maritime human behaviour, from military³⁷ and criminal³⁸ activities up to commercial³⁹ and hydrographic⁴⁰ operations.

In this regard, the proposed research will limitedly investigate the legal implications concerning the activity of transport of goods and people by sea. In particular, the focus

³⁶ From seafarer to “*e-farer*”, *shipping looks for the crews of tomorrow*, CyprusMail, 9 October 2019; *Is this the end of the seafarer and the rise of e-farer?*, Nor-Shipping 2021, available at <http://www.nor-shipping.com/the-rise-of-the-e-farer/>.

³⁷ KRASKA J.; PEDROZO R., *Disruptive Technology and the Law of Naval Warfare*, Oxford, 2022 (forthcoming); BUTT, M.; CHANG, Y., *Regulation of Autonomous Maritime Weapon Systems under the Governance Framework of International Law*, cit.; SCHMITT M.; GODDARD D., *International Law and the Military Use of Unmanned Maritime Systems*, International Review of the Red Cross, 2016, p. 567-592; KRASKA J., *The Law of Unmanned Naval Systems in War and in Peace*, Journal of Ocean Technology, 2010, p. 44-68.

³⁸ McLAUGHLIN R.; KLEIN N., *Maritime Autonomous Vehicles and Drug Trafficking by Sea: Some Legal Issues*, The International Journal of Marine & Coastal Law, p. 389-418; PETRIG A., *Autonomous Offender Ships and International Maritime Security Law*, cit.; PETRIG A., *The Commission of Maritime Crimes with Unmanned Systems: An Interpretative Challenge for UNCLOS*, cit.; KLEIN N., *Maritime Autonomous Vehicles within International Law Framework to Enhance Maritime Security*, International Law Studies, 2019, p. 244-271; VON HEINEGG W. H., *The Exasperating Debate on the Legality of Unmanned Systems – Time for a Realistic Approach*, cit.

³⁹ ZOU L.; XING R., *Developments of Unmanned and Autonomous Merchant Ships*, cit.; VAN HOOYDONK H., *The Law of Unmanned Merchant Shipping - An Exploration*, cit.

⁴⁰ WRÖBEL K.; WIENTRIT A., *With Regard to the Autonomy in Maritime Operations – Hydrography and Shipping, Interlinked*, International Journal on Marine Navigation and Safety of Sea Transportation, 2020, p. 745-749; HOFMANN T.; PROELSS A., *The Operations of Gliders under the International Law of the Sea*, Ocean Development and International Law, 2015, p. 167-187.

of this research is the *navigation of autonomous ships*⁴¹ *engaged in international voyages*⁴² *for commercial purposes*.

At the state of art, any official nomenclature precisely defines the target of the proposed study. Comprehensibly, indeed:

«The development of new technologies aimed at increased automation in shipping has given to the rise to significant terminological confusion. Terms such as remote operation, automation, autonomy, intelligence, unmanned ships, autonomous ships, cyber-enabled ships, and smart ships are widely used but rarely defined»⁴³.

Within this uncertain scenario, the preliminary efforts of the IMO are of outstanding relevance. When drafting the above-mentioned Interim Guidelines⁴⁴ and the RSE⁴⁵, the Organization has coined the acronym *MASS*, intended as:

«a ship which, to a varying degree, can operate independently of human interaction»⁴⁶.

From the reading of the reported definition, it emerges that the acronym *MASS* includes a huge variety of means of maritime transport characterized by different “levels” of automation. In order to further clarify the chosen methodological approach, the IMO has classified the degrees of automation characterizing the *MASS* technology. Precisely, both the Interim Guidelines and the RSE are based on the definition of four different classes of automation:

«Degree one: Ship with automated processes and decision support: Seafarers are on board to operate and control shipboard systems and functions. Some operations may be

⁴¹ Due to this methodological choice, this thesis will not analyze the avail of automation technology concerning the use of gliders. To more about this topic, see KLEIN N.; GUILFOYLE D.; KARIM M.S.; MCLAUGHLIN R., *Maritime Autonomous Vehicles: New Frontiers in the Law of the Sea*, cit., p. 720-722; HOFMANN T.; PROELSS A., *The Operations of Gliders under the International Law of the Sea*, cit.; .

⁴² As it will be better observed in the development of this work, international rules of navigation regulate the performance of this human activity whent it assumes and international outreach. Accordingly, reg. I/1,(a) of the IMO Convention on Safety of Life at Sea (SOLAS) states that: «Unless expressly provided otherwise, the present Regulations apply only to ships *engaged on international voyages*» (emphasis added).

⁴³ RINGBOM H.; COLLIN F., *Terminology and Concepts*, in RINGBOM H.; RØSÆG E.; SOLVANG T., (eds.), *Autonomous Ships and the Law*, New York, 2020, p. 7.

⁴⁴ See note 11 of the Introduction to the thesis.

⁴⁵ See note 12 of the introduction to the thesis.

⁴⁶ IMO Docs. MSC 98/23 of 28 June 2017.

automated and at times be unsupervised but with seafarers on board ready to take control;

Degree two: Remotely controlled ship with seafarers on board: The ship is controlled and operated from another location. Seafarers are available on board to take control and to operate the shipboard systems and functions;

Degree three: Remotely controlled ship without seafarers on board: The ship is controlled and operated from another location. There are no seafarers on board;

Degree four: Fully autonomous ship: The operating system of the ship is able to make decisions and determine actions by itself»⁴⁷.

According to this classification, the reported degrees of automation differ from each other. While the first two levels require the physical attendance of seafarers on board the ship (manned MASS), the remaining two are characterized by a complete remote control (unmanned MASS)⁴⁸; furthermore, MASS belonging to the fourth degree can navigate without any human involvement in the decision-making loop.

Intuitively, this scheme is not the unique method for categorizing autonomous ships⁴⁹. However, it is the position of this author that the approach adopted by the IMO is able to well-distinguish these new maritime vehicles from traditional ships and, at the same time, it also highlights the “factual plurality” characterizing this technological advancement. For this reason, the thesis will avail of the above-mentioned IMO classification scheme.

In dealing with the proposed research question, therefore, this work will constantly take into account the differences occurring between MASS belonging to the fourth mentioned classes of automation. In few words, not every MASS is unmanned and not every MASS is fully autonomous: this fact is essential for the development of the proposed legal analysis. This methodological choice will be kept even when addressing international legal issues which have not been specifically analyzed by the IMO in the Interim Guidelines or in the RSE.

⁴⁷ IMO RSE, p. 3-4. For a detailed analysis on this classification, see RINGBOM H.; COLLIN F., *Terminology and Concepts*, cit., p. 12-15.

⁴⁸ RINGBOM H., *Legalizing Autonomous Ships*, cit., p. 433: «two of the four degrees of autonomy relate to remote control, which is not, strictly speaking, related to autonomy, but rather to the location from which human functions are performed».

⁴⁹ Just to provide an example, a more detailed analysis has been conducted by PIETRZYKOWSKI Z.; MALUJDA R., *Autonomous Ship: Responsibility Issues*, in MILKULSKI J. (eds.), *Management Perspective for Transport Telematics*, 2018, p. 398-399.

4. Methodology of work

This thesis will observe the use of MASS and its legal implications through the lens of *Public International Law*.

Except for section 2 of the first chapter, which will provide an overview about the human activity of navigation from a semantical and ergonomic perspective, non-legal arguments related to autonomous navigation will not be considered in the forthcoming pages. Within the “legal scenario”, then, this study will not analyze which impact this technological advancement has with regard to normative systems other than Public International Law, such as, for example, domestic law and international private law.

In dealing with this study, the adopted methodological strategy is to conceive International Law as a «normative system»⁵⁰ composed of many *regimes* and *sub-regimes*⁵¹.

Notoriously, the production of law-making treaties that occurred in the twentieth century has strongly revolutionized the contemporary configuration of International Law⁵²; in the last decades, several scholars have emphasized the systemic consequences brought by the phenomenon of the *fragmentation of International Law*, here intended as:

«the emergence of new and special types of law, “self-contained regimes” and geographically or functionally limited treaty-systems [...]»⁵³.

To guide this legal debate, the International Law Commission (ILC) – through the renowned report of the study group chaired by prof. Koskenniemi – has authoritatively confirmed the *systemic nature of International Law*⁵⁴.

Using this conclusion as the starting point for the present work, this author intends to adopt a *regime-based approach*. This methodological choice is due to the fact that:

⁵⁰ HIGGINS R., *Problems and Process. International Law and How We Use It*, Oxford, 1995, p. 1: «[i]nternational law is not rules. It is a normative system».

⁵¹ ILC, *Fragmentation of International Law*, cit., conclusion (2), p. 252-253.

⁵² JENCKS C.W., *The Conflict of Law-Making Treaties*, BYBIL vo. 30, 1953, p. 403: «[...] law making treaties are tending to develop in a number of historical, functional and regional groups which are separated from each other and whose mutual relationships are in some respects analogous to those of separate systems of municipal law».

⁵³ ILC, *Fragmentation of International Law*, cit., para. 15.

⁵⁴ See note 46 of this chapter.

«regimes are helpful in that they set boundaries to legal thinking, making it easier to identify relevant rules and principles, instruments, and mechanisms»⁵⁵.

Furthermore, the regime-based approach:

«[...] save[s] time and provide[s] a relative degree of certainty as to the applicable rules and competent institutions»⁵⁶.

Since the addressed topic deals with the performance of maritime activities, it is self-evident that the analysis of the rules of the Law of the Sea⁵⁷ will cover a central role. However, the proposed study will not be limited in exclusively dealing with the norms belonging to the mentioned international regime; as it has been anticipated, this thesis will observe the use of MASS into the international legal system. Therefore, it will also analyze international rules belonging to other regimes playing a functional (Treaty Law, State Responsibility) or substantial (Human Rights Law, Refugee Law) role in the development of the proposed research.

In so doing, this author will follow a *positivistic approach* precisely aimed at *interpreting the scope of the existing international rules*. Still today, the use of MASS is “too new” to be analyzed in light of the practice of States in this specific respect. Once recognized the current lack of relevant *diuturnitas sive necessitates* concerning the use of MASS, this study will be necessarily based on the analysis and interpretation of the relevant positive rules currently in force with regard to the new factual reality brought by the rise of automation technologies.

⁵⁵ PAPANICOLOPULU I., *International Law and the Protection of People at Sea*, cit., p. 65.

⁵⁶ Ibid. About the goodness in adopting a regime-based approach, scholars are quite divided on this matter. For more information on this legal debate, see YOUNG O.; UNDERDAL A. (eds.), *Regime Consequences: Methodological Challenges and Research Strategies*, Berlin, 2004; CRAWFORD R.M.A., *Regime Theory in the Post Cold World: Rethinking Neoliberal Approaches in International Relations*, Aldershot, 1996.

⁵⁷ The analysis and the definition to give to the Law of the Sea regime are provided in section 3(a) of the first chapter of this research.

5. Structure of the work

The divergencies occurring between traditional and autonomous navigation raise a wide variety of legal issues concerning many areas of International Law. Therefore, the use of MASS potentially impacts almost every existing rule concerning the international transport of goods and people by sea. In this respect, the proposed research will limitedly address some of those *matters for which the automatization of the relationship between the human agents and the ship plays constitutive and intrinsic role*. The author is fully aware that even other fields are seriously challenged by MASS⁵⁸. Due to time constraints, however, it has been taken the decision to delimit the object of the thesis by limitedly observing those international rules which, in his view, appear to be more “troubled” by the new ergonomic paradigm brought by automation technologies.

According to what has been already clarified, this thesis will be divided into three chapters, respectively dealing with the following normative blocks.

The first chapter will address the analysis of the international rules which precisely regulate the ergonomics of navigation and will investigate whether and how these rules apply to the use of MASS. As it will be better explained in the following pages⁵⁹, International Law sets specific norms regulating the use of ships. Accordingly, these provisions, aimed at ensuring *safety of navigation*⁶⁰, will be necessarily analyzed at the very beginning of the research. Chapter I will start from providing a factual and semantical description of the activity of navigation; this preliminary step will be instrumental for the subsequent analysis of the international rules on safety of navigation, now highly challenged by the technology of automation.

Chapter II will continue this study by investigating the allocation of State jurisdictional powers over the use of MASS. As it has been anticipated, remotely controlled ships differ from traditional vessels for the fact that human involvement in navigation may take place even from shore. From a theoretical perspective, this fact poses innovative challenges for the configuration of the jurisdictional balance at sea;

⁵⁸ For example, many issues concerning maritime security, environmental law, international labour law arise to to the growing use of MASS.

⁵⁹ See section 1 of the first chapter of the present research.

⁶⁰ For more clarity about the nomenclature “safety of navigation” for the purposes of this research, see section 2 of the first chapter.

accordingly, it seems that even States other than the port, the coastal and the flag States may invoke to some extent their jurisdiction over MASS navigation. The second chapter of the thesis will therefore observe if the international rules regulating the “State governance” over ships may be applied to MASS and which theoretical and practical implications may be reasonably expected.

Chapter III will try to comprehend how the international rules on providing assistance to people in distress at sea relate to the use of MASS. Due to the ergonomic differences occurring between traditional and MASS navigation, one may wonder if International Law effectively protects human life of endangered persons in the same way as it does when dealing with the circulation of traditional ships. In this regard, many questions arise: is the use of MASS exempted from complying with international duties of assistance at sea? Is it lawful to produce ships that are not designed for *rescuing* people? What level of assistance should be required to MASS? Are remotely- controlled MASS beneficiaries of assistance measures⁶¹? What role will be played by the flag and the coastal States?

Once reconstructed the international legal framework from *a de iure condito* perspective, this chapter will deal with the above-mentioned legal questions, in order to provide some food for thought on the next steps the international community should take for strengthening the protection of human lives in distress at sea in the forthcoming era of autonomous navigation.

In conclusion, the last pages of this thesis will be dedicated to report some final considerations about the conducted research, in order to frame the emerged results into a longer-term perspective, emphasising which future steps the international community

⁶¹ Concerning this question, it has to be specified that this chapter limitedly deals with the issue concerning the use of MASS and the international duties of rendering assistance. The author is aware of the fact that the present analysis could be further completed by investigating on the “other side” of the international duties of providing assistance, *i.e.* the right of a ship in distress to be assisted by other vessels. Contrarily to traditional ships, indeed, the use of MASS does not usually attempt the life of the subjective element of navigation: per definition, remote operators work from shore, far away from the typical threats occurring in the marine environment. This means that, in case of a situation of distress at sea suffered by an unmanned ship, no people may be in danger of losing their life. From a legal viewpoint, this fact poses the question of whether and to what extent unmanned ships can be beneficiaries of assistance to be provided by other vessels. This topic will not be addressed in the third chapter of the present research. This decision is justified by the fact that this chapter does not deal with *international rules on salvage* (see GARABELLO R., *Salvage*, Max Planck Encyclopedia of International Law, 2013), which – most probably – should find application in the occurrence of an unmanned ship found in distress at sea.

should take in dealing with the *climate of legal uncertainty* deriving from the on-going process of automatization of the transport of goods and people at sea.

CHAPTER I

THE INTERNATIONAL REGULATION OF HUMAN INVOLVEMENT IN NAVIGATION AND ITS APPLICABILITY TO THE USE OF MASS

SUMMARY: **1.** Introduction to the chapter – **2.** The art of navigation: a factual analysis on the human activity and its evolution over time – a) Definitions of the word “navigation” – b) The subjective and objective elements of navigation – **3.** The international legal framework on safety of navigation – a) The position covered by the rules on safety of navigation within the international legal system – b) UNCLOS rules on flag States concerning safety of navigation – c) The International Maritime Organization and its role in the regulation of navigation – d) The most relevant IMO Conventions on safety of navigation: their status of generally accepted international rules and standards e) *Ad interim* conclusions – **4.** The legal analysis of human involvement in the activity of navigation – a) The manning of ships – b) Training of the actors of navigation – c) The regulation of circulation of ships - d) The legal status of sea-workers – i) The legal status of the master – ii) The legal status of the seafarer – **5.** The applicability of international rules on human involvement in navigation to the use of MASS – a) General remarks on the temporal factor in interpreting conventional rules – b) Interpretative analysis of international rules on the manning of ships with regard to the use of MASS – c) Interpretative analysis of international rules on the training of the actors of navigation with regard to the use of MASS – i) The debate on “sight and hearing” at the IMO Conference on revision of the International Regulations for Preventing Collisions at Sea of 1972 – d) Interpretative analysis of international rules on circulation of ships with regard to the use of MASS – e) Interpretative analysis of the legal status of sea-workers with regard to the use of MASS – i) The legal status of the master in MASS navigation – ii) The legal status of the seafarer in MASS navigation – **6.** The challenge of the regulation of the use of MASS in the near future: some conclusive reflections.

1. Introduction to the chapter

Automation is transforming the traditional factual relationship between the ship and its users, challenging the common understanding of the human activity of navigation. Summarizing what has been already anticipated¹, the use of MASS brings two main ergonomic (r)evolutions: first, the physical attendance of people on board the ship is no longer necessary; second, the activity of navigation may be fully automatized, so that it

¹ See the introduction to this research.

can be conducted without necessarily involving human discretion in the “decision-making loop”².

Since nowadays the human activity of navigation is facing a strong period of change, even the international rules regulating its performance are called to adapt themselves to the consequences brought by this ergonomic novelty.

Accordingly, the first chapter of the present research will describe the international regulation of human involvement in navigation and, therefore, will analyze the legal impact arising from the use of MASS. In few words, it is here intended to observe how International Law regulates the *ergonomics of navigation*³ and, subsequently, which legal implications could come from the production of autonomous means of maritime transport. Thanks to the promotion and the coordination of the IMO⁴, this legal issue has been already in-depth analyzed in scholarship⁵; today, this debate continues to “monopolize” the attention of the international lawyers when dealing with autonomous navigation.

The analysis of the outlined topic is divided into the five following sections.

The next one (2) will observe the human activity of navigation from a factual perspective. The art of navigating, while constantly evolving, is based on millennial culture, that will be briefly outlined at the beginning of this work. From a methodological perspective, dealing with this non-legal matter is of pivotal importance;

² With the phrase “decision-making loop”, it is here intended the direct and constant involvement of humans in the conduction of the activity of navigation. This locution is recurrent in the works of several scholars. See RINGBOM H., *Regulating Autonomous Ships – Concepts, Challenges and Precedents*, Ocean Development & International Law, 2019, p. 141-169; CMI, *CMI International Working Group Position Paper on Unmanned Ships and the International Regulatory Framework*, 2018; VEAL R; RINGBOM H., *Unmanned Ships and the International Regulatory Framework*, Journal of International Maritime Law, 2017, p. 100-118.

³ Although international lawyers have traditionally paid little attention to the international regulation of the ergonomics of navigation, a detailed analysis is fundamental in this historical period. Indeed, the current lack of discussion is clearly excusable, since, before the rise of MASS, no particular legal issue has emerged in relation to the concept of the human involvement in navigation. In fact, international rules under study are founded on a traditional conception of navigation; as a consequence, they have always presumed the necessary presence of the crew on board, the master in charge and the mechanical control over the ship. Nowadays, instead, the exponential rise of automation is revolutionizing the modalities of the human involvement in navigation: International Law is called to deal with this technological revolution. In this respect, see SMEELE F., *Switching of Regulatory Requirements: Flag State Exemptions as a Tool to Facilitate Experiments with Highly Automated Vessels and their Operational Implementation*, in RINGBOM H.; RØSÆG E.; SOLVANG T., (eds.), *Autonomous Ships and the Law*, New York, 2020, p. 69.

⁴ See section 1 of the introductions of this thesis.

⁵ See note 8 of the introductions of this thesis.

a study on the regulation on the human involvement in navigation presupposes to first clarify what “navigation at sea” means in history (and for the research as well)⁶.

In the philosophy of law, relevant scholars classify all existing norms in two main categories: constitutive rules, which *create* new sociological (or ontological) “facts”⁷, and regulative rules, which *regulate* pre-existent human activities⁸. Then, since the legal framework analyzed in chapter I does not *constitute* the activity of navigation, but simply *regulates* it, a factual background on the ergonomics of navigation is highly recommended.

Subsequently, the following section (3) will describe the international legal framework concerning the activity of navigation from a *de iure condito* perspective.

Intuitively, International Law sets a huge variety of provisions broadly dealing with “navigation”. Although this term is recurrent in many legal documents and international conventions, a general legal definition does not currently exist. From a semantical perspective, “navigation” is an axiom, a *primitive concept of language*⁹: it is one of those words that:

«elude a priori definition; they can be illustrated, but not defined; they must be applied to the circumstances of each case»¹⁰.

⁶ The chosen methodological approach is supported also by GIULIANO M., *Diritto Internazionale*, Milano, 1971, p. 8: «Il diritto internazionale, così come del resto ogni fenomeno giuridico, affonda le sue radici e si presenta indissolubilmente legato con una ben determinata realtà sociale. Ed soltanto nel contesto di una siffatta realtà che possibile, per la scienza giuridica [...] di parlarne, di rilevare e di intendere il contenuto delle regole che lo compongono, di conoscere i destinatari di tali regole, di cogliere e di precisare l'individualità e l'unità delle stesse di fronte ad altri sistemi di regole giuridiche e non giuridiche, e – più in generale – di compiere quelle operazioni di sistemazione, di classificazione, di coordinamento, e anche di integrazione, in cui si sostanzia l'opera della scienza giuridica ed in rapporto alle quali può parlarsi del diritto come dello “ordinamento giuridico” della società internazionale».

⁷ See ZELANIEC W., *Create to Rule: Studies on Constitutive Rules*, Milano, 2013; ROVERSI C., *Costituire: uno studio di ontologia giuridica*, Torino, 2012; SEARLE J.R., *How to derive «ought» from «is»*, *The Philosophical Review* 73, 1964, p. 43-58.

⁸ ZELANIEC W., *Create to Rule: Studies on Constitutive Rules*, cit., p. 10: «Rules that primarily prescribe typically pertain to things already existing, not constituted by themselves, and not constituted, in many important cases, by any man-made rules at all».

⁹ STEBBING L.S., *A Modern Introduction to Logic*, Harrogate, 1966, p. 175: «such concepts are definable and demonstrable, but it is meaningless to say this without specifying the system within which they are being used».

¹⁰ CHENG B., *General Principles of Law as applied by International Courts and Tribunals*, London, 1953, p. 105. More generally, see KOSKENNIEMI M., *Form Apology to Utopia: The Structure of International Legal Argument*, Cambridge, 2005, p. 503: «The idea that law can provide objective resolutions to actual disputes is premised on the assumption that legal concepts have a meaning which is present in them in some intrinsic way, that at least their core meanings can be verified in an objective fashion. But modern linguistics has taught us that concepts do not have such natural meanings. In one way or other, meanings are determined by the conceptual scheme in which due concepts appears».

The legal framework here analyzed does not include all the international provisions dealing with “navigation”. Precisely, rules on States’ navigational rights, vessel-sourced pollution and international private law issues are not part of the present chapter; since these norms regulate international relationships *deriving from* and *caused by* navigation, they do not directly deal with the mere activity *of* navigation.

More precisely, the following work will describe the rules imposing on flag States¹¹ specific duties about the construction, the equipment, the manning, the training of crew and the circulation of ships. These norms have in common the purpose of ensuring the highest possible level of safety in carrying out navigation; in this sense, they are usually called *international rules on safety of navigation*¹².

Once clarified the margins within which the present chapter extends, the fourth section (4) will specifically address the international regulation of the *human involvement* in navigation¹³. This part will be focused on the analysis of the international rules regulating the ergonomics of navigation. Precisely, this section will firstly deal with the *quantity* (manning of the ships) and the *quality* (formation and training) levels of the crew required by the law for ensuring the safety of navigation; then, it will address the regulation of the human *activity* itself (circulation of the ships). Conclusively, it will analyze the international legal status of the two most important working figures into the maritime scenario, namely the “*master*” and the “*seafarer*”.

Then, the fifth section (5) will turn to the issue concerning how the reported rules relate with the growing use of autonomous ships. The recent rise of MASS imposes to understand whether and how the use of these new maritime vehicles complies with the existing international legal system, which has been drafted with another idea of “navigation” in mind.

Methodologically wise, the fifth section of the chapter revolves around a more general legal question, *i.e. the evolutionary approach in interpreting international*

¹¹ The topic of flag State jurisdiction is in depth analyzed in section 3(b) of the second chapter of this research.

¹² BOISSON P., *Safety at Sea*, Paris, 1999, p. 137-154.

¹³ For the purposes of this work, “human component” means: «individual physical or sensory limitations, human physiology, psychological limitations, individual workload management and experience, skill and knowledge». This definition is in depth analyzed by GRECH M. R.; HORBERRY T. J.; KOESTER T., *Human Factor in the Maritime Domain*, cit., p. 24; RIZZO A., SAVE L., *A proactive method for managing safety issues*, Paper presented at RTO HFM workshop on “*The human factor in system reliability - Is human performance predictable?*”, 1999.

written rules. Indeed, the international provisions here analysed were conceived many years ago, when States were not aware of the recent rise of digitalization and automation in the field of maritime transport¹⁴. Many interpretative questions mark the issue concerning their applicability to the use of autonomous and unmanned¹⁵ means of navigation.

Lastly, the final section (6) will report the principal conclusions emerging from this chapter, in order to provide some food for thought on the next steps the international community could take for managing the revolutionary use of automation technologies in this respect.

¹⁴ COITO J., *Maritime Autonomous Surface Ships. New Possibilities – and Challenges – in Ocean Law and Policy*, cit., p. 296: «The corpus of international law, treaties, regulations governing navigational safety was drafted in contemplation of crewed vessels».

¹⁵ The recourse of the terms “manned” and “unmanned” in this research is due to a methodological choice, since they are constantly used by the specialized literature and by the conventions analysed. However, it should be noted that this terminology is contested because of concerns on the unequal treatment between genders, and the term ‘human’ should be prioritized. For more information on this debate, see PAPANICOLOPULU I.(ed.), *Gender and the Law of the Sea*, Leiden, 2019.

2. The art of navigation: a factual analysis on the human activity and its evolution over time

Navigation is one of the most ancient activities carried out by the human species in its overall history¹⁶; according to archaeological studies, it has been practiced since – at least – 700 millennia¹⁷. Since old times, navigational knowledge and culture were so important to become a distinctive sign of identity of nations¹⁸. From Phoenicians to Egyptians, from Greeks to Romans, the way of performing navigation have strongly characterized their economy, their military actions and their political behaviours.

Still today, its socio-economic role is of outstanding relevance. Navigation allows people to cross waters and overcome geographical and cultural borders. To provide a more concrete example of its pivotal economic importance, nowadays more or less 90% of the international trade occurs at sea¹⁹.

Navigation can be studied in many fields, from engineering to history, from computational science to law. The present section will briefly describe the activity of navigation at sea from a pre-juridical perspective. This work will start from the analysis of its terminological definition. This semantical *excursus* intends to clarify the meaning to give to the activity of “navigation” for the purposes of the present chapter and of the thesis in its entirety. Subsequently, the research will focus on the description of the factual link occurring between the *subjective* (human involvement) and *objective* (ships) elements of navigation²⁰. In so doing, it will briefly report some basic knowledge about the ergonomics of navigation, in order to provide a factual background for the following legal analysis. Precisely, this section will emphasize how the concrete modalities for

¹⁶ CHURCHILL R.R.; LOWE A.V., *The Law of the Sea*, Manchester, 1999, p. 2: «Along with fishing, navigation is the oldest use of the sea, and it remains one of the most important». For a brief analysis of the historical evolution of the activity of navigation, see HOFMANN-WELLENOF B., LEGAT K., WIESER M., *Navigation*, Wien, 2003, p. 9-18. For an analysis about the historical evolution of the regulation of navigation, see FRANKOT E., ‘Of Laws of Ships and Seamen’. *Medieval Maritime Law and its Practice in Urban Northern Europe*, Edinburgh, 2012.

¹⁷ BEDNARIK R., *The origins of navigation and language*, Artefact: the Journal of the Archaeological and Anthropological Society of Victoria, 1997, p. 16; FUSARO M.; ALLAIRE B.; BLAKEMORE R (eds.), *Law, Labour and Empire: Comparative Perspectives on Seafarers*, London, 2015.

¹⁸ BERG N.; STORGARD J.; LAPPALAINEN J., *The Impact of Ship Crews on Maritime Safety*, cit.

¹⁹ UNCTAD, *50 Years of Maritime Transport, 1968-2018*, New York, 2018, p. 4. BEKKEVOLD J.; TILL G., *International Order at Sea: What It Is. How It Is Challenged. How It Is Maintained*, Chippenham, 2016, p. 3.

²⁰ See section 2(b) of this chapter.

performing navigation are intrinsically connected with the technological features characterizing the design, the construction and the methods of propulsion of the ships.

a) Definitions of the word “navigation”

In the common language, the word “navigation” has a sufficiently clear meaning. When we use this term in daily-life conversations, our interlocutors can easily understand what we are talking about, without the need to provide a specific definition. As previously pointed out, it is what in logic is known as an axiom, or a primitive concept²¹. However, for the development of this work it is important to precisely understand which human activities are usually defined by the term “navigation”.

Making a comparison of different languages, in English, the word “navigation” is defined as:

«the skill or process of plotting a route and directing a ship, aircraft, etc, along it»²².

The corresponding French term “navigation” is the:

«action, fait de naviguer, de se déplacer sur l’eau, dans l’air, dans l’espace»²³.

Moreover, in Spanish, “navegación” is defined as the:

«acción de navegar. Viaje que se hace con la nave. Ciencia y arte de navegar»²⁴.

From a first reading, it is interesting to note that the reported definitions have four common elements: “navigation” is an activity (1); it consists of a certain movement (2);

²¹ STEBBING L.S., *A Modern Introduction to Logic*, cit., p. 175: «such concepts are definable and demonstrable, but it is meaningless to say this without specifying the system within which they are being used».

²² *Collins dictionary* (UK).

²³ *Larousse dictionnaire* (FR).

²⁴ Real Academia Española, *Diccionario de la lengua Española* (ESP).

this movement requires the use of an instrument, an artefact (3), and it occurs into a geographical domain *other than land* (water, air, space²⁵) (4).

For what concerns the last-mentioned element, although nowadays the word “navigation” is used to describe the act of moving into many different domains, *its semantical and conceptual origins lie in the maritime context*. Accordingly, the Latin word “*navigatio*” derives from the substantive noun *navis*, meaning “ship”, and the verb *agere*, meaning “to act”.

As anticipated, the present section limitedly deals with the factual description of navigation occurring *at sea*. For this reason, it seems appropriate to report other definitions which are exclusively related to navigation occurring in the marine domain. In this context, “navigation” is intended as:

«the process of directing the movements of watercraft from one point to another; the process, always present in some form when a vessel is under way and not drifting, varies with the type of craft, its mission, and its area of operation»²⁶;

or:

«the act or the science or the business of traversing the sea or other navigable waters in ships or vessels»²⁷.

From the reading of these more specific enunciations, it is now possible to further clarify what “navigation at sea” means for the purposes of the following research: an *activity* (1) *consisting of a movement* (2) *by water* (3) *through the use of an object*²⁸ (4).

²⁵ Furthermore, it is interesting to note that in the Italian language the verb “navigare” is also used for describing the activity of surfing the internet.

²⁶ McGraw-Hill Dictionary of Scientific & Technical Terms.

²⁷ Black’s Law Dictionary.

²⁸ With regard to the issue concerning the definition of the concept of ship, see section 3(a)(i) of the second chapter of this research.

b) The subjective and the objective elements of navigation

From the already conducted analysis, further reflections arise.

First, navigation is intrinsically a *human* activity. It is a truism to say that, without any human involvement, navigation cannot take place; it can exclusively be conducted by human beings, who are its physical authors and protagonists.

Second, the ergonomics of navigation is closely related to the object utilized for the movement into the marine domain; broadly speaking, navigation at sea is the way for traversing waters *characterized by the use of the ships*. Otherwise, without ships, humans can still cross waters, but they are performing the activity of swim, and not of navigation.

From a factual perspective, these two elements – human involvement (here defined as the *subjective element*) and ships (*objective element*) – are the conceptual core basis of navigation. This is the reason why, according to further definitions, “navigation at sea” is intended as:

«that branch of science which teaches the sailor to conduct his ship from place to place»²⁹,

or:

«the act of directing a ship, [...] from one place to another, or the science of finding a way from one place to another»³⁰.

From this perspective, navigation is a science, an art. It is something more than its mere purpose (the movement by water); it is a *culture*³¹, in the sense of a «set of socially accepted practices and values»³², by which humans pursue a determinate goal in a specific fashion. Put differently, “navigation” describes the human knowledge regarding the use of the ships.

²⁹ DIFRENNA F., *A Dictionary of Sea Terms*, Glasgow, 1956, p. 184.

³⁰ *Cambridge dictionary* (UK).

³¹ CAROL-DEKKER D., *Maritime Culture: A Sociological Perspective*, The International Journal of Maritime History, 2018.

³² FRANKLIN U. M., *The Real World of Technology, Revised edition*, Toronto, 2004, p.6.

Coherently to what already pointed out, it is interesting to note that the performance of navigation may be analyzed through the lens of *sociotechnical system models*: these techniques study the maritime behaviours by means of:

«[the] analysis of the design of the equipment, *the interaction of the human operator with the equipment*, and the procedures followed by crew and management»³³.

When dealing with the factual features composing navigation, these studies advocate a «more holistic systematic approach»³⁴. Through sociotechnical system models, the activity of navigation is reconstructed as a combination of technology (objective element) and a determinate social system (subjective element)³⁵. These models have been already incorporated into IMO guidance for maritime accidents investigations³⁶.

Once recognized the centrality of the interconnection between the objective and the subjective elements of navigation, this research is mainly focused on the latter, to clarify what are the characteristics of the human involvement in navigation. This analysis is not typically addressed by the law (whether national or international) but by the science of ergonomics³⁷. In this regard, several studies have been conducted to analyze the human interactions with the marine environment³⁸. Even if the target of the present research is not to go deeper into this topic – considering its complexity and its extraneousness to purely legal issues – it is interesting to note, at least, one typical approach of the science of ergonomics applied to navigation: the human involvement *in the conduction of this activity is constantly changing, following the technological progress in the construction and design of the ships*.

³³ IMO, Resolution A.884(21), Amendments to the Code for the Investigation of Marine Casualties and incidents, 25 November 1999, p. 4 (emphasis added).

³⁴ GRECH M. R.; HORBERRY T. J.; KOESTER T., *Human Factor in the Maritime Domain*, cit., p. 20.

³⁵ Among others, the most renowned sociotechnical system model is the SHEL model, which describes a system made up of interactions between humans, technology, procedures and work environment. It was first developed by Elwyn Edwards (1972) and later modified by Frank Hawkins (1984).

³⁶ IMO, Resolution A.884(21), Amendments to the Code for the Investigation of Marine Casualties and incidents, 25 November 1999.

³⁷ See note 1 of this chapter.

³⁸ SCAICO A.; VIEIRA M.; MARKSON DE SOUSA; SANTONI C., *Investigating System Navigation Ergonomics through Model Verification*, Heidelberg, 2008; GRECH M. R.; HORBERRY T. J.; KOESTER T., *Human Factor in the Maritime Domain*, cit.; RIZZO A., SAVE L., *A proactive method for managing safety issues*, cit.; ANDERSON E.V., *The principles of Navigation*, London, 1966; MAJIENDIE A. M. A., *The display and Use of Navigational Intelligence*, J. Inst. Navigation, 1958, p. 1-13.

Every human activity involving the use of tools and/or instruments depends on the level of technology achieved; in this sense, the philosopher Ursula Franklin observed that:

«[...] *technology of doing something defines the activity itself*»³⁹.

In the author's view, navigation makes no exception. As it is well known, ships have continuously evolved over history: just consider the propulsion methods, the dimensions of the vehicles and the materials used for construction⁴⁰, and, nowadays, the degrees of automation⁴¹. Following these maritime technological evolutions, the concrete modalities for performing navigation have changed too. Precisely, today seafarers' life and job duties are incomparable with what were in the past; the technological development has innovated many aspects of human involvement in navigation, from seafarers' skills to the training of the crews, from the methods of control of the vehicles to the socio-cultural realities occurring on board⁴².

Just to provide few examples, the technological innovation of the mechanical engine has drastically innovated the techniques for crossing the seas: the replacement of renewable (wind) by steam energy and, later, by fossil energy have largely modified the ergonomics of navigation⁴³. Again, vessel communication has intensively evolved:

«from the flag hoist signals used in Nelson's Navy, to Marconi's radioteletype and radiotelephone, which were initially limited to analog line-of-sight methods, but which

³⁹ FRANKLIN U. M., *The Real World of Technology*, cit., p. 9 (emphasis added).

⁴⁰ ALLEN C.H., *Determining the Legal Status of Unmanned Maritime Vehicles: Formalism vs Functionalism*, *Journal of Maritime Law & Commerce*, 2018, p. 481-482: «Vessel hull materials progressed from the Egyptian reed boats on the Nile River to wood, iron, steel, fiberglass, aluminum, and even carbon fiber. The vessels were propelled by poles, paddles, oars, and sails, and by steam, diesel internal combustion engines, gas turbines, nuclear power, and more recently fully electric and even solar power plants. Propulsion methods have included paddle wheels, propellers, azimuth thrusters, and water jets».

⁴¹ See section 3 of the introduction to the thesis.

⁴² MANUEL M.E., BAUMLER R., *The Evolution of Seafarer Education and Training in International Law*, in MUKHERJEE P., MEJIA, JR. M., XU J. (eds), *Maritime Law in Motion*, WMU Studies in Maritime Affairs, vol 8., Cham, 2020, p. 474: «the development of seafarer education and training, was driven by the need to sustain shipping assets in a national context and to strengthen the maritime power of nations as well as respond to disruptors in technology (in that context, from sailing "technology" to a mechanical one)».

⁴³ GRÜBLER A., *The Rise and Fall of Infrastructures*, Heidelberg, 1990, p. 83-89; GLENN WRIGHT R., *Unmanned and Autonomous Ships*, cit., p. 2-6.

evolved into today's digital cellular and space-based transmission of voice, data, and imagery communications»⁴⁴.

The avail of all these innovations has presupposed new ergonomic skills, making others obsolete⁴⁵. Paradoxically, one of the few fixed elements defining the activity of navigation is the progressive, but constant, technological evolution of its objective element, which, consequently, determines a specular adaptation of its subjective element. In other words, both its objective and subjective elements can be seen as the products of the level of technology reached by humanity in a certain period time. Any study on the activity of navigation – whatever the scientific branch of belonging – cannot ignore this fundamental aspect: *technological progress is an intrinsic part of navigation*.

Therefore, turning to the principal topic of the present chapter, the definition of “navigation” previously exposed may be further completed by adding a new constitutive element: in the following research, with the phrase “navigation at sea”, it is intended every *human activity (1) consisting of a movement (2) by water (3) through the use of an object (4), characterized by the level of technology achieved (5)*.

⁴⁴ ALLEN C.H., *Determining the Legal Status of Unmanned Maritime Vehicles: Formalism vs Functionalism*, cit., p. 6.

⁴⁵ McDONALD A., *Reflections on a Changing Industry and the Seafaring Profession*, in CHIRCOP A.; LETALIK N.; MCDORMAN T.; ROLSTON S. (eds.), *The Regulation of International Shipping: International and Comparative Perspectives*, Leiden/Boston, 2012, p. 473-489.

3. The international legal framework on safety of navigation

Once defined “navigation at sea” for the purposes of this research, the present section will describe the international legal framework regulating the human activity of navigation.

At a preliminary level, the analysis will provide some remarks about the position covered by these rules within the international legal system⁴⁶, a topic that has generated many theoretical debates in the last decades⁴⁷. By adopting a «conceptual thinking in terms of regimes»⁴⁸, it will be intended to demonstrate their belonging to the *Law of the Sea* regime.

Subsequently, it will follow a descriptive analysis of the existing international rules on navigation. This part will be structured in three steps.

First, this study will observe the provisions codified by the United Nations Convention on the Law of the Sea (UNCLOS)⁴⁹. Second, it will report some basic knowledge about the history, the structure and the functioning of the IMO, which plays a key role in this regard. Finally, this research will report the IMO international rules and standards concerning the performance of the activity of navigation. Among various international conventions adopted under the auspices of the IMO, the Convention for the Safety of Life at Sea (SOLAS)⁵⁰, the International Convention on Standards of

⁴⁶ About the issue concerning the systemic nature of International Law, see ILC, Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law. Report of the Study Group of the International Law Commission Finalized by Martti Koskenniemi, 13 April 2006, UN Doc A/ CN.4/ L.682 (Koskenniemi Report).

⁴⁷ Accordingly, it is not always clear whether the rules on navigation are part of the legal regime of International Maritime Law or, otherwise, of the Law of the Sea. In this respect, among others, see VUKAS B., *The Definition of the Law of the Sea*, in ANDO N.; MCWHINEY E.; WOLFRUM R. (eds.), *Liber Amicorum Judge Shigeru Oda*, Vol. 2, The Hague, 2002, p. 1307.

⁴⁸ PAPANICOLOPULU I., *International Law and the Protection of People at Sea*, Oxford, 2018, p. 64. In this respect, see also KRASNER S., *Structural Causes and Regime Consequences: Regimes as Intervening Variables*, International Organization, Vol. 36, No. 2, 1982, p. 185-205; RUGGIE J., *International Responses to Technology: Concepts and Trends*, International Organization, Vol. 29, No. 3, 1975, p. 557-583. With specific regard to the study of Law of the Sea through the lens of a regime-based approach, see SCOTT S., *The LOS Convention as a Constitutional Regime for Oceans*, in ELFERINK A., *Stability and Change in the Law of the Sea: the Role of the LOS Convention*, Leiden 2005.

⁴⁹ United Nations Convention on the Law of the Sea (UNCLOS), Montego Bay, signed in 1982, entry into force in 1994. To date, 168 States are parties to the present convention.

⁵⁰ International Convention for the Safety of Life at Sea, 1974 (entered into force 25 May 1980), as amended. The SOLAS Convention currently has 165 States Parties, the combined merchant fleets of which constitute approximately 99.04% of the gross tonnage of the world's merchant fleet.

Training (STCW)⁵¹ and the Convention on the International Regulations for Preventing Collisions at Sea (COLREGs)⁵² stand for relevance. Furthermore, due to their nature of “*generally accepted international rules and standards*” (GAIRS), particular attention will be given to the scope of application of these three international treaties⁵³.

Before starting the outlined analysis, a preliminary clarification is necessary. The provisions under study are commonly known as the *international rules on safety of navigation*⁵⁴: this research does not refrain from using the mentioned locution because it looks functional to delimit and define the legal framework object of analysis. In any case, it is important to specify that these rules are here intended not just as a subset of a more extended normative block concerning the activity of navigation: in the author’s view, *they are the sole international provisions precisely dealing with the ergonomics of navigation*. The adoption of the nomenclature “*safety of navigation*”, in fact, highlights the rationale of these rules: to ensure the maximum level of safety achievable for the conduction of navigation⁵⁵. Crossing the sea on board ships is a dangerous activity⁵⁶;

⁵¹ International Convention on Standards of Training, 1978 (entered into force 28 April 1984), as amended. The STCW Convention currently has 165 States Parties, the combined merchant fleets of which constitute approximately 99.03% of the gross tonnage of the world’s merchant fleet.

⁵² Convention on the International Regulations for Preventing Collisions at Sea, 1972 (entered into force 15 July 1977), as amended. The COLREGs Convention currently has 160 States Parties, the combined merchant fleets of which constitute approximately 99.03% of the gross tonnage of the world’s merchant fleet.

⁵³ Among others, see REDGWELL C., *Mind the Gap in the GAIRS: The Role of other Instruments in the LOSC Regime Implementation in the Offshore Energy Sector*, The International Journal of Marine and Coastal Law, 2014, p. 600-621; HARRISON J., *Making the Law of the Sea*, New York, 2011, p. 171-179; ALLEN C., *Revisiting the Thames Formula: The Evolving Role of the International Maritime Organization and Its Member States in Implementing the 1982 Law of the Sea Convention*, 10 San Diego International Law Journal, 2009, p. 265-334; SOHN L., *Implications of the Law of the Sea Convention regarding the protection of the marine environment*, in KRUEGER R. B.; RIESENFELD S. A. (ed.), *The developing Order of the Oceans*, Honolulu, 1985, p. 109.

⁵⁴ This nomenclature is adopted, among others, by PAPANICOLOPULU I., *International Law and the Protection of People at Sea*, cit., p. 81; ROUCOUNAS E., *Facteurs privés et droit international public*, 299 Recueil des Cours 9, 2002, p. 183- 84; ANDERSON D.; SING J., *The Roles of Flag States, Port States, Coastal States and International Organisations in the Enforcement of International Rules and Standards Governing the Safety of Navigation and the Prevention of Pollution from Ships under the UN Convention on the Law of the Sea and Other International Agreements*, Singapore Journal of International & Comparative Law, 1998, p. 557-578; BOISSON P., *Safety at Sea*, cit., p. 137: «The safety of shipping is at present governed principally by international rules and standards. As an integral part of international public law, they conform to its modes of production and implementation».

⁵⁵ ROUCOUNAS E., *Effectiveness of International Law for the Users of the Sea*, Bancaja Euromediterranean Courses of International Law, Vol. VIII/IX, 2004-2005, p. 910: «Conceptually the term “safety of navigation” refers to the standards of construction, operation and management, in one word, navigability in all its modern parameters».

⁵⁶ For a very recent and attractive lecture on the multiple risks related to the human presence at sea, see URBINA I., *The Outlaw Ocean: Journeys Across the Last Untamed Frontier*, New York, 2019.

navigation is studded with so many risks⁵⁷ which, in a certain sense, characterize and define it. Therefore, since these rules are finalized to ensure safe conduction of the human activities at sea⁵⁸, in this sense the following section will describe the international legal framework on “*safety of navigation*”.

a) The position covered by the rules on safety of navigation within the international legal system

As traditionally conceived, the Law of the Sea is defined as:

«the body of international rules that binds States and other subjects of international law in their marine affairs [...]»⁵⁹.

From a historical viewpoint, this regime covers a central position within the international legal system⁶⁰; notoriously, the governance of the oceans was one of the first matters that States addressed through the lens of international legal relationships⁶¹. This conclusion is testified by the most renowned doctrinal works characterizing the classic era of International Law. Just to provide an example, in the seventieth century, Hugo Grotius – unanimously considered one of the founding fathers of International Law – has intensively addressed this field, not only in the renowned “*Mare liberum*”, but also in the treatise “*De jure belli ac pacis*”⁶².

⁵⁷ BOISSON P., *Safety at Sea*, cit., p. 31-38.

⁵⁸ This position is also supported by the fact that - from a sociological point of view - the maritime culture is founded on safety concerns. In this respect, see CAROL-DEKKER D., *Maritime Culture: A Sociological Perspective*, The International Journal of Maritime History, 2018.

⁵⁹ TANAKA Y., *The International Law of the Sea*, Cambridge, 2019, p. 3. According to CHURCHILL R.R.; LOWE A.V., *The Law of the Sea*, 3rd edition, Manchester, 1999, p. 1, International Law of the Sea consists of all «the rules which bind States in their international relations concerning maritime matters». TREVES. T., *Law of the Sea*, Max Planck Encyclopedia, 2011: «the branch of international law that concerns rights and obligations of States regarding maritime matters». The last two reported definitions are more limited from a subjective point of view, in the sense that they do not explicitly take into account other subjects of International Law rather than States.

⁶⁰ VUKAS B., *The Definition of the Law of the Sea*, cit., p. 1303.

⁶¹ O'CONNELL D. P., *The International Law of the Sea*, New York, 1982, p. 29: «the sea is the international arena wherein for centuries states have daily had to regulate their conduct by reference to rules other than of their own making». Among others, with regard to the evolution of International Law of the Sea over time, see SCOVAZZI T., *The Evolution of International Law of the Sea: New Issues, New Challenges*, 286 Recueil des Cours 39, 2000, NORDQUIST M.; NANDAN S.; ROSENNE S., *United Nations Convention on the Law of the Sea 1982, Commentary*, Vol. I, Leiden, 1985, p. XXV-XXIX.

⁶² As observed by TREVES. T., *Law of the Sea*, cit.

From a normative perspective, Law of the Sea rules are united by, at least, two main characteristics.

First – intuitively enough – they regulate the use of marine space. Their normative content necessarily deals with the exploration and the exploitation of the hydrosphere, intended as all the oceans and seas and the marine natural resources therein. In prof. Gidel’s words, these provisions constitute:

«l’ordre juridique qui régit le milieu marin et les diverses utilisations don’t il est susceptible»⁶³.

Second, being the Law of the Sea one of the most ancient fields of International Law⁶⁴, its rules are (usually) characterized by a classic State-centeredness nature. Precisely, this legal regime primarily regulates State’s interests concerning maritime matters; to pursue this rationale, its provisions typically set legal relationships over States and other “classic” subjects of International Law (such as international organisations⁶⁵), and not (usually) over individuals⁶⁶. Even if they deal with physical human activities, which are concretely conducted by physical persons⁶⁷, the adopted normative technique is to conceive them through the lens of the State’s rights and duties⁶⁸. In any case, this does not exclude that some specific Law of the Sea provisions may grant international rights and duties *directly* to individuals. For example, as it will be better specified in the third chapter of this research⁶⁹, the Law of the Sea directly

⁶³ GIDEL G., *Le droit international public de la mer*, Vol. I, Chateauroux, 1932, p. 43.

⁶⁴ PAPANICOLOPULU I., *International Law and the Protection of People at Sea*, cit., p. 84.

⁶⁵ See note 101.

⁶⁶ It must be further specified that the State-centeredness characteristic of the Law of the Sea is not contradicted by the ascertainment of the growing relevance of International Organizations in this field. As it will be more in-depth observed in the following pages, International Organizations play a pivotal role in developing how State interests are regulated by the Law of the Sea. On this matter, see CHURCHILL R. R.; LOWE A. V., *The Law of the Sea*, cit., p. 22-24.

⁶⁷ It is important to clarify that this characteristic is something different from the issue of the attribution of conducts of physical actors to States. While being conscious that «From the fact that States are juridical persons it follows that they must act through physical persons» (CHENG B., *General Principles of Law*, Cambridge, 1987, p. 183), what it is stressed here is that Law of the Sea rules deals with human activities not directly attributable to States; otherwise, they regulate these individuals’ behaviours through imposing States’ rights and duties.

⁶⁸ PAPANICOLOPULU I., *The Law of the Sea Convention: No Place for Persons?*, The International Journal of Marine and Coastal Law 27, 2012, p. 872: «The entire LOSC attributes rights and duties to States, not to individuals. While rights of persons may implicitly follow from the rights and duties of States, they are often uncertain, depending as they do on the implementation of generic obligations by States».

⁶⁹ Precisely, see section 2(b)(i) of the third chapter of the present research.

imposes on shipmasters international duties to provide assistance to people in distress at sea. In any case, the State-centeredness nature largely characterizes the structure and the functioning of the Law of the Sea as a legal regime⁷⁰.

Following this reasoning, it can be inferred that international rules on safety of navigation reflect these two mentioned normative characteristics.

In fact, with regard to the first one, it is a truism to say that the regulation of the activity of navigation is a marine topic.

As far as the second element is concerned (State-centeredness nature) – as it will be carefully observed below⁷¹ – these international rules usually oblige *States* to ensure that the physical actors of navigation perform certain specific behaviours: this normative technique reflects the typical State-centeredness nature of the regime of the Law of the Sea⁷². Accordingly:

«Ships themselves cannot incur responsibilities by international law as they are not subjects of international law. It is instead the flag State who bears the duty to comply with international law. Ships therefore merely derive their rights and obligations from the States whose nationality they have»⁷³.

Broadly speaking, States, not individuals, are the direct recipients of the rules on safety of navigation. Therefore, the provisions under study may be legitimately considered as part of the legal regime of the Law of the Sea⁷⁴.

In this specific regard, however, it cannot be forgotten that some authors often qualify the rules on safety of navigation as “*international maritime law provisions*”. According to prof. Vukas, for example:

«[...] even in some traditional areas regulated in the LOS Convention there are rules which *stricto sensu* do not belong to the law of the sea, but are closely related to that part of international law. Thus, the rule according to which every State shall fix the

⁷⁰ European Court of Justice, in the *Intertanko Case*, C-308/06, 2008, para. 62.

⁷¹ See section 4 of the present chapter.

⁷² QUERCI F.A., *Diritto della navigazione*, Padova, 1989, p. 39.

⁷³ ZWINGE T., *Duties of Flag States to Implement and Enforce International Standards and Regulations - And Measures to Counter Their Failure to Do So*, *Journal of International Business and Law*, 2011, p. 298.

⁷⁴ ROUCOUNAS E., *Facteurs privés et droit international public*, cit., p. 183-184. Contrarily to this position, see TANZI A., *A Concise introduction to International Law*, Torino, 2019, p. 172. More in the past, this topic has been addressed by SCIALOJA A., *Corso di diritto della navigazione*, Roma, 1943, p. 23-28.

conditions for granting its nationality to ships [...] can be considered as belonging to the law of the sea. Yet many of the rules on the duties of the State which has granted the nationality of to a ship – the flag State – belong to maritime law»⁷⁵.

Is this position in contradiction to what has already affirmed? Are “Maritime Law” and “Law of the Sea” synonyms for describing the same set of rules? Since it is not the goal of this chapter to go further into such an abstract (and never-ending) debate, these pages are just finalized to legitimize the possibility to include these provisions into the Law of the Sea regime, regardless of the common recourse to the broad and unclear qualification of “Maritime Law”⁷⁶.

The author fully acknowledges that it is not easy to understand what “Maritime Law” precisely means⁷⁷. According to prof. Treves, for example, “Maritime Law” is the:

«branch of *domestic* law which focuses on the relationships between private individuals and corporate bodies as regards maritime activities such as maritime transport, maritime insurance, and the responsibilities of ship-owners and other persons»⁷⁸.

Similarly, but not identically, prof. Harris defines it as:

«the body of both domestic law governing maritime activities, and *private international law* governing the relationships between private entities which operate vessels on the oceans»⁷⁹.

Observing these definitions, some difficulties arise in providing a satisfactory understanding of the meaning to give to “Maritime Law”. In this respect, it is quite evident that this locution describes a group of rules dealing with the human use of the marine space, and, therefore, somehow connected with the Law of the Sea: put

⁷⁵ VUKAS B., *The Definition of the Law of the Sea*, cit., p. 1307:

⁷⁶ The outlined analysis becomes even more complex when we remember how much is difficult to find a specific distinction between “Maritime Law” and “Admiralty Law”. In the common law legal systems, indeed, these two terms are often utilized in hendiadys. For more information on this issue, see WALKER G., *The Interface of Admiralty Law and Oceans Law*, *Journal of Maritime Law & Commerce*, Vol. 45, no .3, 2014, p. 281-318; SCHOENBAUM, T. J., *Admiralty and maritime law*, Eagan, 1994.

⁷⁷ ROUCOUNAS E., *Facteurs privés et droit international public*, cit., p. 183.

⁷⁸ TREVES. T., *Law of the Sea*, cit. (emphasis added).

⁷⁹ HARRIS, J. W., *Maritime Law: Issues, Challenges and Implications*, New York, 2011, p. VII (emphasis added).

differently, their scope of application extends into the same geographical area regulated by the Law of the Sea. At the same time, it seems also clear that these two terms are not synonyms: while the Law of the Sea mainly regulates *State's interests and behaviours*, it seems that Maritime Law governs the *legal relationships between individuals*⁸⁰, sometimes at a national level, in other times at an international ground⁸¹.

Following this nomenclature, then, it could be argued that the international rules on safety of navigation – which mainly regulate the States' interests and behaviours in the performance of navigation – are Law of the Sea provisions.

In the author's view, when addressing this topic, the recourse to the term "Maritime Law" should be avoided because it creates confusion and it leads to slippery theoretical discussions⁸². In any case, this does not anyway contradict the previously reached conclusion, *i.e.* that these rules belong to the international legal regime of Law of the Sea.

b) UNCLOS rules on flag States concerning safety of navigation

The international regime of Law of the Sea is one of the oldest and, at the same time, one of the most advanced branches of the public international legal system. While

⁸⁰ On this advice, see TANZI A., *A Concise introduction to International Law*, cit., p. 172: «This body of international law [Law of the Sea] addresses the legal relationships between states, hence, their rights and obligations, pertaining to the sea and the use thereof. In that sense, it is not to be confused with maritime law which is a branch of domestic law, hence, addressing the legal relationships in maritime matters between individual and legal companies».

⁸¹ According to O'Connell, the nature of maritime law provisions is far from being clear. In his view, their «character as municipal law or international law may sometimes be ambiguous» (see to O'CONNELL D. P., *The International Law of the Sea*, cit., p.746).

⁸² This is because there are many possible conceptualizations of what "Maritime Law" means. Among others, for example, the adjective "maritime" could be interpreted just as a specification of the object of the described norms. In this sense, "rules of maritime law" may be intended as those prescriptions dealing with the marine space which are *specifically related to the regulation of the human activities conducted at sea*, independently of the fact whether they fall within the international regime of the Law of the Sea or not. In this respect, it is interesting to report the authoritative thought of Gidel. According to the French Professor, all rules concerning the use of the marine space – both national and international – can be logically divided in two main sub-categories: «1° Celles qui concernent le milieu marin lui-même et les différentes parties don't il se compose au point de vue du droit; 2° Celles qui concernent les engins permettant à l'homme de se mouvoir sur ou dans le milieu marin et d'en tirer les utilities qu'il comporte: ces engins sont, avant tout, les navires» (GIDEL G., *Le droit international public de la mer*, cit., p. 43). Following this classification, the second group of provisions pointed out by Gidel could be properly defined as "of Maritime Law"; according to this interpretation, the recourse to the adjective "maritime" is not finalized to distinguish a specific set of rules from a systemic point of view, but simply to highlight and qualify the pure "maritime" nature of their object.

its origins lie in the pre-Westphalian era, the contemporary configuration of Law of the Sea is based on the drafting and the conclusion of the UNCLOS, one of the most ambitious and innovative law-making treaties ever realized by the international community in its history⁸³. In Zuleta's words, the conclusion of UNCLOS negotiations configured:

«a monument to international co-operation in the treaty-making process [...]. The elaboration of the Convention represents an attempt to establish true universality in the effort to achieve a "just and equitable international economic order" governing ocean space»⁸⁴.

After twenty-seven years from the starting of the negotiations (1967)⁸⁵ and twelve years from its signature (1982), UNCLOS entered into force on the 16 of November 1994; to date, 168 States are parties to the treaty. The Convention is composed of 320 articles, organized in seventeen parts and nine annexes. As it is declared at the beginning of the preamble, its main purpose is to completely and universally regulate the marine domain⁸⁶. Broadly speaking, the so-called «Constitution of Oceans»⁸⁷ aims not only at codifying the pre-existent customary norms but also at predisposing the

⁸³ See TREVES T., *The Development Of The Law Of The Sea Since The Adoption Of The UN Convention On The Law Of The Sea: Achievements And Challenges For The Future*, in VIDAS D. (ed.), *Law, Technology and Science for Oceans in Globalization*, Leiden, 2010, p. 51-53.

⁸⁴ ZULETA B., *Introduction to the United Convention on the Law of the Sea*, in NORDQUIST M.; NANDAN S.; ROSENNE S., *United Nations Convention on the Law of the Sea 1982*, cit., p. 17.

⁸⁵ United Nations General Assembly, Twenty-second session, 1 November 1967, Intervention of the Maltese Ambassador Arvid Pardo.

⁸⁶ UNCLOS, Preamble: «The States Parties to this Convention, Prompted by the desire to settle, in a spirit of mutual understanding and cooperation, *all issues relating to the law of the sea* and aware of the historic significance of this Convention as an important contribution to the maintenance of peace, justice and progress for all peoples of the world,» (emphasis added). What affirmed in the preamble of UNCLOS signs the change of strategy in the process of codification of the Law of the Sea. Indeed, in the previous years, the international community has acted to draft not one, but a plurality of international conventions, each of which dealt with specific topics of the Law of the Sea. Those efforts concluded with the promulgation of four different international covenants: the Convention on the Territorial Sea and the Contiguous Zone (signed in 1958, entered into force in 1964), the Convention on the High Seas (signed in 1958, entered into force in 1962), the Convention on Fishing and Conservation of the Living Resources of the High Seas (signed in 1958, entered into force in 1966) and the Convention on the Continental Shelf (signed in 1958, entered into force in 1964).

⁸⁷ Remarks by T.B. (Tommy) Koh, President of the Third United Nations Conference on the Law of the Sea, 1982. About the constitutional nature of UNCLOS: SCOTT S., *The LOS Convention as a Constitutional Regime for Oceans*, cit.

progressive development of the *entire* regime of the Law of the Sea⁸⁸. In few words, UNCLOS is:

«the first comprehensive treaty *dealing with practically every aspect of the uses and resources of the seas and the oceans*»⁸⁹.

As it is well known, the Convention addresses many aspects related to the human activity of navigation. Precisely, UNCLOS codifies the regulation of States' navigational rights⁹⁰, the performance of relevant activities realized through navigation⁹¹ and of environmental issues rising from navigation⁹². As it has been previously clarified, this research does not address these sets of rules, because they do not directly deal with the ergonomics of navigation; broadly speaking, they regulate the international relationships *deriving from and caused by* navigation.

Therefore, with exclusive regard to the mere performance of the human activity of navigation, UNCLOS sets just few general rules⁹³ – concerning the construction, the equipment, the manning of ships and the training of their crews and masters – the relevance of which is, however, fundamental, because they constitute the normative basis around which more specific international rules find their genesis. These basic rules on safety of navigation are provided in part VII of UNCLOS. Precisely, art. 94,3 imposes the Parties to:

⁸⁸ NELSON D., *Reflections on the 1982 Convention on the Law of the Sea*, in FREESTONE D.; BARNES R.; ONG D. (eds.), *The Law of the Sea. Progress and Prospects*, New York, 2006, p. 28-39; TREVES T., *Codification du droit international et pratique des Etats dans le droit de la mer*, 223 Recueil des Cours, 1990.

⁸⁹ Remarks by T.B. (Tommy) Koh, President of the Third United Nations Conference on the Law of the Sea, 1982, (emphasis added). For a critical analysis of the pretence of universality characterizing UNCLOS, see SCOVAZZI T., *The Assumption that the United Nations Convention on the Law of the Sea is the Legal Framework for All Activities Taking Place in the Sea*, in ARICÒ S. (ed.), *Ocean Sustainability in the 21st Century*, Cambridge, 2015, p. 232-248.

⁹⁰ These provisions, whose content is strictly related to the legal status of the maritime zones regulated by the Convention, are included in Parts II (Territorial Sea and Contiguous Zone), III (Straits used for international navigation), IV (Archipelagic States), V (Exclusive Economic Zone) and VII (High Seas) of UNCLOS.

⁹¹ UNCLOS sets basic provisions regarding the activity of fishing (Parts V and VII) and the conduction of marine scientific research (Part XIII).

⁹² Rules concerning pollution from ships are contained in UNCLOS, Part XII (Protection and preservation of the Marine Environment).

⁹³ IMO, Secretary-General, *Report of the Ad Hoc Consultative Meeting of Senior Representatives of International Organizations on the "Genuine Link,"* para. 19, U.N. Doc. A/61/160 Annex, July 17, 2006. In this sense, see RINGBOM H., *Legalizing Autonomous Ships*, cit., p. 441: «With respect to shipping, a characteristic feature is the ambition to establish a uniform set of minimum rules for shipping that apply worldwide, irrespectively of flag and trading area».

«take such measures for ships flying its flag as are necessary to ensure safety at sea with regard, inter alia, to:

- (a) the construction, equipment and seaworthiness of ships;
- (b) the manning of ships, labour conditions and the training of crews, taking into account the applicable international instruments;
- (c) the use of signals, the maintenance of communications and the prevention of collisions»⁹⁴.

Again, art. 94,4 UNCLOS states that:

«Such measures shall include those necessary to ensure:

- (a) that each ship, before registration and thereafter at appropriate intervals, is surveyed by a qualified surveyor of ships, and has on board such charts, nautical publications and navigational equipment and instruments as are appropriate for the safe navigation of the ship;
- (b) that each ship is in the charge of a master and officers who possess appropriate qualifications, in particular in seamanship, navigation, communications and marine engineering, and that the crew is appropriate in qualification and numbers for the type, size, machinery and equipment of the ship;
- (c) that the master, officers and, to the extent appropriate, the crew are fully conversant with and required to observe the applicable international regulations concerning the safety of life at sea, the prevention of collisions, the prevention, reduction and control of marine pollution, and the maintenance of communications by radio»⁹⁵.

Once reported the text of these provisions, it is easier to highlight some of their characteristic features.

First of all, the rationale of UNCLOS rules is to *ensure the highest possible level in terms of safety for carrying out the activity of navigation*⁹⁶: following what previously said about the nomenclature “safety of navigation”⁹⁷, it is intuitive that they can be considered part of the legal framework object of analysis.

Then, it must be highlighted that UNCLOS provisions do not directly impose duties over the human actors of navigation; on the contrary, they set international obligations over flag States: art. 94 of UNCLOS obliges them to concretely enforce, through

⁹⁴ UNCLOS, article 94,3.

⁹⁵ UNCLOS, article 94,4.

⁹⁶ On this view, see SCOVAZZI T., *ITLOS and Jurisdiction over Ships*, in RINGBOM H. (ed.), *Jurisdiction over Ships*, Leiden, 2017, p. 387.

⁹⁷ See the introduction to section 3 of this chapter.

domestic legal instruments, that ships flying their flag shall navigate safely⁹⁸. From a structural point of view, these rules reflect the typical State-centeredness nature characterizing the “classic fashion” of the Law of the Sea⁹⁹. Indeed, while their task is to ensure that the navigation of the *individuals* is conducted in the safest possible way, the recipients of the international duties are *non-physical* interlocutors, *i.e.* the flag States¹⁰⁰.

Continuing the analysis, another fundamental characteristic of these provisions is that they limitedly set a general duty to *ensure* safety of navigation, without going too far in the definition of specific standards for the safe performance of navigation. Following a renowned normative classification, these articles configure *due diligence obligations*¹⁰¹. For what concerns this particular normative category¹⁰², scholars¹⁰³ and international tribunals¹⁰⁴ describe them as *positive obligations*, entailing:

⁹⁸ This position has been confirmed by the European Court of Justice, in the *Intertanko Case*, cit., para. 62: «[...] it is the flag State which, under the Convention, must take such measures as are necessary to ensure safety at sea and, therefore, to protect the interests of other States. The flag State may thus also be held liable, vis-à-vis other States, for harm caused by a ship flying its flag to marine areas placed under those States’ sovereignty, where that harm results from a failure of the flag State to fulfil its obligations». Again, read *Implications of the United Nations Convention on the Law of the Sea, 1982 for the International Maritime Organization, Study by the Secretariat of IMO*, I:\LEG\MISC\7.doc, January 19, 2012, p. 15 and 19.

⁹⁹ For a recent and attractive study on this matter, see BARATTA R., *L’effetto diretto delle disposizioni internazionali* self-executing, *Rivista di Diritto Internazionale*, 2020, p. 5-49. Even in this case, it is important to remind that this author does not exclude that Law of the Sea rules, and more generally International Law rules, may set legal relationships directly upon individuals. This topic is further analyzed in section 2(b)(i) of the third chapter of this research.

¹⁰⁰ This normative structure is deeply observed in MANSELL J., *Flag State Responsibility*, Heidelberg, 2010.

¹⁰¹ See PAPANICOLOPULU I., *Due Diligence in the Law of the Sea*, in KRIEGER H.; PETERS A.; KREUZER L. (eds.), *Due Diligence in the International Legal Order*, Oxford, 2021, p. 147-162.

¹⁰² In the contemporary ages, the specific study on due diligence rules started in the field of Environmental Law. For more information, read RAGNI C., *Scienza, diritto e giustizia internazionale*, Milano, 2020, p. 64-77; BIRNIE P.; BOYLE A.; REDGWELL C., *International Law and the Environment*, New York, 2009; WOLFRUM R., *Purposes and Principles of International Environmental Law*, German Yearbook of International Law, Vol. 33, 1990; PISILLO MAZZESCHI R., *Due diligence e responsabilità internazionale degli Stati*, Milano, 1989; DUPUY P.M., *Due Diligence in International Law of Liability*, OECD, Legal Aspects of Transfrontalier Pollution, 1977.

¹⁰³ In this research, it is not possible to dwell on the normative nature and the related issues of due diligence obligations. For more information about this matter, among others, see OLLINO A., *Due Diligence Obligations in International Law: A Theoretical Study*, Cambridge, 2022 (forthcoming); KULESZA J., *Due Diligence in International Law*, Leiden, 2016; KOIVUROVA T., *Due diligence*, Max Plack Encyclopedia of International Law, 2010; BARNIDGE R., *The Due Diligence Principle under International Law*, International Law Community Review, 2006; PISILLO MAZZESCHI R., *Due diligence e responsabilità internazionale degli Stati*, cit.

¹⁰⁴ The most relevant judicial cases dealing with the identification and analysis of due diligence obligations are *Alabama claims of the United States of America against Great Britain*, Award rendered on 14 September by the tribunal of arbitration established by Article I of the Treaty of Washington of 8 May 1871; *Trail Smelter Case* (United States v. Canada), Arbitral Awards, 1941; *Corfù Channel Case* (United

«[...] not only the adoption of *appropriate* rules and measures, but also a certain level of vigilance in their enforcement and the exercise of administrative control applicable to public and private operators»¹⁰⁵.

By definition, due diligence obligations are general and their content is flexible: they do not provide specific duties of result, but merely *duties of conduct*, which are subject to change in the light of the existing circumstances¹⁰⁶.

Once acknowledged this, it must be added that the generic nature of UNCLOS provisions is further completed by more specific international rules, prescribing flag States detailed standards concerning safety of navigation. Indeed, beyond the reported norms, UNCLOS, when dealing with ergonomic aspects of navigation, frequently refers to “other” rules dealing with safety at sea¹⁰⁷. Precisely, States have to *conform to the generally accepted international regulations, procedures and practices*¹⁰⁸. Just to provide few examples, art. 21, 2 of UNCLOS, dealing with “Laws and regulations of the coastal State relating to innocent passage”, imposes States not to adopt domestic laws and regulations:

«[...] to the design, construction, manning or equipment of foreign ships unless they are giving effect to generally accepted international rules or standards»¹⁰⁹.

Kingdom v. Albania), Judgement, I.C.J. Reports, 1949, para 22; *Pulp Mills on the River Uruguay* (Argentina v. Uruguay), Judgement, I.C.J. Reports, 2010, para 197; *Responsibilities and Obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area* (Seabed Disputes Chamber, Advisory Opinion of 1 February 2011) (*SDC Opinion*); *Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission*, Advisory Opinion, 2 April 2015, ITLOS Reports 2015, para 129.

¹⁰⁵ *Pulp Mills on the River Uruguay*, cit., para. 197 (emphasis added). Similarly the Sea-Bed Chamber of ITLOS, in the advisory opinion on *Responsibilities and Obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area*, cit., declared that due diligence: «is not an obligation to achieve, in each and every case, the result that the sponsored contractor complies with the aforementioned obligations. Rather, it is an obligation to deploy adequate means, to exercise best possible efforts, to do the utmost, to obtain this result» (para 120).

¹⁰⁶ GARCIA AMADOR F., *Second Report on State Responsibility* (Doc. A7CN. 4/106), 1957, p. 122: «The earned authorities are in almost unanimous agreement that the rule of due diligence cannot be reduced to a clear and accurate definition which might serve as an objective and automatic standard for deciding, regardless of the circumstances, whether a State was diligent in discharging its duty of vigilance and protection». Precisely, about due diligence obligations in the regime of the Law of the Sea, read PAPANICOLOPULU I., *International Law and the Protection of People at Sea*, cit., p. 175: «These ‘due diligence’ obligations are variable and their content may change over time, in light of new scientific or technological knowledge, but also in respect of the risks involved in the specific activity».

¹⁰⁷ WOLFRUM R., *IMO Interface with the Law of the Sea Convention*, in NORDQUIST M.; MOORE J.N., (ed.), *Current Maritime Issues and the International Maritime Organisation*, The Hague, 1999, p. 228.

¹⁰⁸ UNCLOS, article 94,5.

¹⁰⁹ UNCLOS, article 21,2.

Then, according to the text of art. 39, 2(a) of UNCLOS, ships in transit passage shall comply with:

«generally accepted international regulations, procedures and practices for safety at sea»¹¹⁰.

Similarly, the same reference is provided in UNCLOS arts. 22,1 and 2; 41,1 and 2; 53 and 217,2.

The outlined normative strategy is justified by the following reasons.

First, due to the progressive technological evolution occurring in the shipping sector¹¹¹, the activity of navigation is constantly in change. This means that rules regulating both the objective and the subjective elements of navigation shall be constantly modified and adjourned following maritime technological innovations. Put differently, this set of rules needs to be frequently modernized through amendments in order to pursue its goal of guaranteeing the highest possible level of safety of navigation. For this very reason, UNCLOS poses just few general provisions, requiring State parties to comply with other and more specific standards drafted by the competent international organizations¹¹². According to authoritative interpreters of UNCLOS, the reference to further specific provisions aims at creating:

«a degree of dynamism, as the standards may change over time, without having to amend the Law of the Sea Convention»¹¹³.

¹¹⁰ UNCLOS, article 39,2(a).

¹¹¹ See section 2 of the introduction to this thesis.

¹¹² This reference is constantly utilized by UNCLOS even with regard to matters other than safety of navigation, such as, for example, marine pollution (see UNCLOS, art. 211, 2, 5, 6 a) and 6 b); art. 212, 3; art. 217, 1 and 7; art. 218, 1; art. 222). With regard to this topic, see MANDRIOLI D., *Una nuova regola internazionale sul contenuto di zolfo nel carburante delle navi: analisi della recente riforma "IMO 2020"*, Rivista Giuridica dell'Ambiente, 2020, p. 73-78.

¹¹³ BECKMAN R.; SUN Z., *The Relationship between UNCLOS and IMO Instruments*, Asia-Pacific Journal of Ocean Law and Policy, 2017, p. 225; HARRISON J., *Making the Law of the Sea*, cit., p. 171. Again, see REDGWELL C., *Mind the Gap in the GAIRS*, cit.; BOYLE A., *Further Development of the Law of the Sea Convention: Mechanisms for Change*, 54(3) International and Comparative Law Quarterly (ICLQ), 2005, p. 563–584. Again see. RINGBOM H., *Regulating Autonomous Ships – Concepts, Challenges and Precedents*, cit., p. 161: «UNCLOS, in other words, avoided the need to detail the precise obligations weighing upon flag states by referring to an abstract and continuously changing set of international rules to be developed elsewhere (notably at the IMO). In this way, the convention avoids “freezing” the requirements at a given point in time or at a given technical level, while still preserving the international character of the rules in question».

Put differently, due to the central position covered by UNCLOS within the regime of the Law of the Sea, the drafters of the Convention opted not to weigh down its text with specific and volatile rules¹¹⁴. In prof. Redgwell's view:

«This reliance on external rules and standards has led to the description of the LOSC [UNCLOS] as “*framework*”»¹¹⁵.

In realizing such dynamism in drafting the technical standards for the regulation of navigation, the *IMO* plays a fundamental role. Indeed, while UNCLOS does not mention it¹¹⁶, the constant recall to the “*competent international organization*” has to be intended as a direct reference to the *IMO*¹¹⁷. In limited cases, then, this sentence may also cover relevant international organizations other than the *IMO*; among them, when dealing with the regulation of labour conditions of sea-workers, the International Labour Organization (*ILO*) stands for relevance¹¹⁸.

¹¹⁴ According to REDGWELL C., *Mind the Gap in the GAIRS*, cit., p. 617: «[...] the integrity of the LOSC is safeguarded by ensuring the consistency of external norms with the LOSC as the “constitution for the oceans” and the development of a “universal law of the sea”». This strategy is constantly adopted by UNCLOS also concerning other fields, such as, for example, the prevention of pollution in the marine environment. See TANAKA Y., *The International Law of the Sea*, cit.; PAPANICOLOPULU I., *International Law and the Protection of People at Sea*, cit., p. 107; CHURCHILL R. R.; LOWE A. V., *The Law of the Sea*, cit.; SOHN L., *Implications of the Law of the Sea Convention regarding the protection of the marine environment*, in KRUEGER R. B.; RIESENFELD S. A. (ed.), *The developing Order of the Oceans*, Honolulu, 1985.

¹¹⁵ REDGWELL C., *Mind the Gap in the GAIRS*, cit., p. 606 (emphasis added). This position is largely supported by many scholars. Among others, see ALLEN C., *Revisiting the Thames Formula*, cit., p. 274; WOLFRUM R., *IMO Interface with the Law of the Sea Convention*, cit., p. 230; *Implications of the United Nations Convention on the Law of the Sea, 1982 for the International Maritime Organization, Study by the Secretariat of IMO*, I:\LEG\MISC\7.doc, January 19, 2012, p. 8; FREESTONE D.; ELFERINK A. G., *Flexibility and Innovation in the Law of the Sea: Will the LOS Convention Amendment Procedure Ever Be Used?*, in ELFERINK A., (ed.) *Stability and Change in the Law of the Sea: the Role of the LOS Convention*, Leiden, 2005, p. 203-207.

¹¹⁶ More precisely, UNCLOS never mentions *IMO* in any of its articles, except for article 2 of Annex VIII.

¹¹⁷ BECKMAN R.; SUN Z., *The Relationship between UNCLOS and IMO Instruments*, cit., p. 221: «There are more than 3 provisions in UNCLOS that refer to international rules, regulations and standards established by *IMO* instruments». Again, see *Implications of the United Nations Convention on the Law of the Sea, 1982 for the International Maritime Organization, Study by the Secretariat of IMO*, I:\LEG\MISC\7.doc, January 19, 2012, p. 7: «In such cases, the expression “competent international organization”, when used in the singular in UNCLOS, applies exclusively to *IMO*, bearing in mind the global mandate of the Organization as a specialized agency within the United Nations system established by the Convention on the International Maritime Organization».

¹¹⁸ The *ILO* has been founded in 1919. Its headquarters are in Geneva. Analogously to *IMO*, it is part of the United Nations system. More precisely, *ILO* has been the first specialized agency recognized by United Nations.

c) The International Maritime Organization (IMO) and its role in the regulation of navigation

Due to the manifest centrality covered by the IMO in the process of elaboration of international rules and standards on safety of navigation, the present section reports some basic information about its composition and functioning, in order to facilitate the understanding of the following analysis about the international treaty rules drafted under its initiatives.

Founded in Geneva in 1948, based in London, the IMO is the first international organization with general competence over shipping. According to art.1(a) of its founding convention¹¹⁹, the main task of the IMO is to:

«provide machinery for co-operation among Governments in the field of governmental regulation and practices relating to technical matters of all kinds affecting shipping engaged in international trade; to encourage and facilitate the general adoption of the highest practicable standards in matters concerning the maritime safety, efficiency of navigation and prevention and control of marine pollution from ships; and to deal with administrative and legal matters related to the purposes set out in this Article»¹²⁰.

From a historical point of view, IMO's origins lie in the 1926 Vienna Conference of the International Law Association, the United Maritime Authority (established in 1944), the United Maritime Consultative Council (1946), and the Provisional Maritime Consultative Council (1947)¹²¹. Originally, the Organization was known as the *Inter-governmental Consultative Organization* (IMCO); subsequently, in 1982, that acronym was changed to "IMO", currently in use still today. Actually, the IMO is composed of 174 member States, the combined merchant fleets of which constitute 97.21% of the gross tonnage of the world's merchant fleet.

¹¹⁹ Convention the International Maritime Organization (IMO), 1958. At the state of art, it is signed by 174 States, the combined merchant fleets of which constitute approximately 97.21% of the gross tonnage of the world's merchant fleet. This treaty has been constantly modified through amendments. The actual version of the text of the treaty was established in 1993, and it entered into force in 2002.

¹²⁰ IMO Convention, article 2(a).

¹²¹ For more details on the birth and functioning of IMO, see ALLEN C., *Revisiting the Thames Formula*, cit., p. 271-272.

As a specialized agency of the United Nations¹²², the IMO operates in close contact with the U.N. Secretariat. Indeed, once a year it submits to the U.N. Secretary-General a report in the annual U.N. Open-ended Informal Consultative Process on Ocean Affairs and Law of the Sea (UNICPOLOS)¹²³.

In compliance with the founding convention¹²⁴, the IMO is composed of many organs, the most important of which are the Assembly, the Council, the Secretariat and the five principal committees: the Maritime Safety Committee, the Marine Environment Protection Committee, the Legal Committee, the Technical Co-operation Committee, and the Facilitation Committee¹²⁵.

The governing body of the organization is the Assembly:

«It consists of all Member States [...]. The Assembly is responsible for approving the work program, voting the budget and determining the financial arrangements of the Organization. The Assembly also elects the Council»¹²⁶.

The Council is the executive organ of the IMO: it is composed of thirty-two Members elected by the Assembly for a biennial mandate¹²⁷. Among many competencies, its main task is to coordinate and supervise the activities of the operative organs of the Organization, among which the aforementioned committees stand for relevance.

With specific regard to the regulation of the activity of navigation, the Maritime Safety Committee (MSC) plays a pivotal role. The MSC has the responsibility to analyze any topic dealing with *safety of navigation*¹²⁸. The organ – composed of

¹²² IMO Convention, art. 59. The meaning and nature of the status of “specialized agency” is analyzed by KIRGIS F., *Specialized Law-Making Processes*, in SCHACHTER O.; JOYNER C. (eds.), *United Nations Legal Order*, Cambridge, 1995, p. 109.

¹²³ ALLEN C., *Revisiting the Thames Formula*, cit., p. 274.

¹²⁴ IMO Convention, art. 11. For an in-depth analysis on the structure and functioning of IMO, see BECKMAN R.; SUN Z., *The Relationship between UNCLOS and IMO Instruments*, cit., p. 204-210.

¹²⁵ To more on IMO functioning, see CHIRCOP A., *The International Maritime Organization*, in ROTHWELL D.; ELFERINK O.; SCOTT K.; STEPHENS T. (eds.), *The Oxford Handbook of The Law of the Sea*, Oxford, 2015, p. 416-438.

¹²⁶ IMO official website www.imo.org.

¹²⁷ IMO Convention, art. 16.

¹²⁸ IMO Convention, art. 28(a): «The Maritime Safety Committee shall consider any matter within the scope of the Organization concerned with aids to navigation, construction and equipment of vessels, manning from a safety standpoint, rules for the prevention of collisions, handling of dangerous cargoes, maritime safety procedures and requirements, hydrographic information, log-books and navigational records, marine casualty investigation, salvage and rescue, and any other matters directly affecting maritime safety».

delegates representing every member State –meets (at least) once a year, and submits proposals and recommendations to the Council about the international regulation on safety of navigation¹²⁹.

Continuing the analysis, the Marine Environment Protection Committee (MEPC) is the organ in charge of the activity to:

«[...] consider any matter within the scope of the Organization concerned with the prevention and control of marine pollution from ships»¹³⁰.

Similarly to the MSC, it is composed of delegates representing the member States and it meets once a year. In order to highlight the relevance of MEPC's efforts in the production of international rules and standards, it must be remembered that the committee has drafted and promoted the International Convention for the Prevention of Pollution from Ships (MARPOL)¹³¹, one of the most successful treaties realized by the IMO in its overall history.

Again, for what concerns the Legal Committee, its main work is to consider any legal matters within the scope of IMO and to draft international conventions concerning these topics¹³². Its structure follows what has been previously told about the MSC and the MEPC.

Finally, the Technical Co-operation Committee and the Facilitation Committee is the most recent organ of the IMO. Its composition and the functioning are regulated, respectively, by parts X and XI of the IMO convention.

¹²⁹ IMO Convention, art. 29.

¹³⁰ IMO Convention, art. 38.

¹³¹ International Convention for the Prevention of Pollution from Ships, (MARPOL), signed in 1973, entered into force in 1978. To date, MARPOL has 162 States Parties, the combined merchant fleets of which constitute approximately 99% of the gross tonnage of the world's merchant fleet. Information reported from the official website www.imo.org.

¹³² IMO Convention, Part VIII.

d) *The most relevant IMO Conventions on safety of navigation: their status of generally accepted international rules and standards*

Inspired by the UNCLOS framework, the IMO fulfills its *quasi-legislative function*¹³³ through the drafting of conventions, agreements, recommendations and other soft law instruments¹³⁴. In the last decades, the Organization has coordinated the promulgation of more than forty international treaties dealing with many aspects related to navigation. In so doing, IMO pursues its global mandate:

«to adopt international regulations [...] whenever reference is made to the competent organization through which those regulations are adopted»¹³⁵.

With specific regard to the rules on safety of navigation, the drafting of legal texts promoted by the MSC has brought to the promulgation of many international treaties¹³⁶, among which the SOLAS, the STCW and the COLREGs stand for relevance.

The SOLAS Convention is the most famous and renowned of all the IMO treaties ever drafted until today¹³⁷. This covenant has ancient origins: its first version was signed by States parties at the beginning of the twentieth century (1914), in response to the Titanic disaster. Then, in 1948, one of the first efforts of the already founded IMCO was to modernize the mentioned treaty. More recently (1974), the fifth and last version was adopted and it entered into force on the 25 of May 1980. To date, SOLAS currently counts 165 States parties, the combined merchant fleets of which constitute approximately 99% of the gross tonnage of the world's merchant fleet¹³⁸. Its treaty

¹³³ BECKMAN R.; SUN Z., *The Relationship between UNCLOS and IMO Instruments*, cit., p. 235; CARTNER J.; FISKE, R.; LEITER T., *The International Law of the Shipmaster*, London, 2009, p. 44; KIRGIS F., *Specialized Law-Making Processes*, cit.

¹³⁴ IMO Convention, art. 2(b): «[...] provide for the drafting of conventions, agreements, or other suitable instruments, and recommend these to Governments and to intergovernmental organizations».

¹³⁵ *Implications of the United Nations Convention on the Law of the Sea for the International Maritime Organization*, Document I:\LEG\MISC\7.doc, January 19, 2012, p. 15.

¹³⁶ In particular, many States ratified the Convention on Facilitation of International Maritime Traffic (FAL), 1965; the International Convention on Load Lines (LL), 1966; the International Convention on Maritime Search and Rescue (SAR), 1979; the Convention for the Suppression of Unlawful Acts Against the Safety of Maritime Navigation (SUA), 1988; the International Convention for Safe Containers (CSC), 1972; the Convention on the International Maritime Satellite Organization (IMSO C), 1976 and the Special Trade Passenger Ships Agreement (STP), 1971 and Protocol on Space Requirements for Special Trade Passenger Ships, 1973.

¹³⁷ For a more complete description of SOLAS history, see O'CONNELL D. P., *The International Law of the Sea*, cit., 1982, p. 764-766.

¹³⁸ See note 50 of this chapter.

provisions apply to all ships engaging in an international voyage¹³⁹. Thus, every ship is potentially included, even the «new» ones¹⁴⁰.

As it can be easily inferred by its title, the main purpose of SOLAS is to:

«specify minimum standards for the construction, equipment and operation of ships, compatible with their safety»¹⁴¹.

The treaty is constantly modernized by the MSC through an extremely dynamic amendment procedure, established by its art. VIII¹⁴².

¹³⁹ SOLAS, Regulation I/1, a): «Unless expressly provided otherwise, the present Regulations apply only to ships engaged on international voyages».

¹⁴⁰ SOLAS, Regulation I/2, k): «"New ship" means a ship the keel of which is laid or which is at a similar stage of construction on or after the date of coming into force of the present Convention».

¹⁴¹ IMO definition reported from the official website www.imo.org. More precisely, *Implications of the United Nations Convention on the Law of the Sea for the International Maritime Organization*, Document I:\LEG\MISC\7.doc, January 19, 2012, p. 20: «SOLAS 1974 and the SOLAS Protocol of 1988 regulate minimum standards for the construction, equipment and operation of ships, in regard to aspects such as subdivision and stability, machinery and electrical installations, fire protection, detection and extinction, life-saving appliances and arrangements and radio-communication». See DEAN P.; CLACK H., *Autonomous shipping and Maritime Law*, in SOYER B.; TETTENBORN A. (eds.), *New Technologies, Artificial Intelligence and Shipping Law*, cit., p. 79: «According to the IMO, the main objective of SOLAS is to specify minimum standards for the construction, equipment and operation of ships, compatible with their safety and applies to "ships entitled to fly the flag of Governments of which are Contracting Governments»

¹⁴² SOLAS, Article VIII: « (a). The present Convention may be amended by either of the procedures specified in the following paragraphs. (b). Amendments after consideration within the Organization: (i). Any amendment proposed by a Contracting Government shall be submitted to the Secretary-General of the Organization, who shall then circulate it to all Members of the Organization and all Contracting Governments at least six months prior to its consideration. (ii). Any amendment proposed and circulated as above shall be referred to the Maritime Safety Committee of the Organization for consideration. (iii). Contracting Governments of States, whether or not Members of the Organization, shall be entitled to participate in the proceedings of the Maritime Safety Committee for the consideration and adoption of amendments. (iv). Amendments shall be adopted by a two-thirds majority of the Contracting Governments present and voting in the Maritime Safety Committee expanded as provided for in subparagraph (iii) of this paragraph (hereinafter referred to as "the expanded Maritime Safety Committee") on condition that at least one third of the Contracting Governments shall be present at the time of voting. (v). Amendments adopted in accordance with subparagraph (iv) of this paragraph shall be communicated by the Secretary-General of the Organization to all Contracting Governments for acceptance. (vi). (1). An amendment to an article of the Convention or to chapter I of the annex shall be deemed to have been accepted on the date on which it is accepted by two thirds of the Contracting Governments. (2). An amendment to the annex other than chapter I shall be deemed to have been accepted: (aa). at the end of two years from the date on which it is communicated to Contracting Governments for acceptance; or (bb). at the end of a different period, which shall not be less than one year, if so determined at the time of its adoption by a two-thirds majority of the Contracting Governments present and voting in the expanded Maritime Safety Committee. However, if within the specified period either more than one third of Contracting Governments, or Contracting Governments the combined merchant fleets of which constitute not less than fifty per cent of the gross tonnage of the world's merchant fleet, notify the Secretary-General of the Organization that they object to the amendment, it shall be deemed not to have been accepted. (vii). (1). An amendment to an article of the Convention or to chapter I of the annex shall enter into force with respect to those Contracting Governments which have accepted it, six months after the date on which it is deemed to have been accepted, and with respect to

Then, the STCW Convention, signed by more than 160 States¹⁴³, prescribes:

«minimum standards relating to training, certification and watch-keeping for seafarers»¹⁴⁴.

Its first version was adopted in 1978, but in 1995 and, more recently, in 2010¹⁴⁵, the STCW has been largely modified and updated following an amendment procedure similar to that provided by SOLAS¹⁴⁶.

each Contracting Government which accepts it after that date, six months after the date of that Contracting Government's acceptance. (2). An amendment to the annex other than chapter I shall enter into force with respect to all Contracting Governments, except those which have objected to the amendment under subparagraph (vi)(2) of this paragraph and which have not withdrawn such objections, six months after the date on which it is deemed to have been accepted. However, before the date set for entry into force, any Contracting Government may give notice to the Secretary-General of the Organization that it exempts itself from giving effect to that amendment for a period not longer than one year from the date of its entry into force, or for such longer period as may be determined by a two-thirds majority of the Contracting Governments present and voting in the expanded Maritime Safety Committee at the time of the adoption of the amendment. (c). Amendment by a Conference: (i). Upon the request of a Contracting Government concurred in by at least one third of the Contracting Governments, the Organization shall convene a Conference of Contracting Governments to consider amendments to the present Convention. (ii). Every amendment adopted by such a Conference by a two-thirds majority of the Contracting Governments present and voting shall be communicated by the Secretary-General of the Organization to all Contracting Governments for acceptance. (iii). Unless the Conference decides otherwise, the amendment shall be deemed to have been accepted and shall enter into force in accordance with the procedures specified in subparagraphs (b)(vi) and (b)(vii) respectively of this article, provided that references in these paragraphs to the expanded Maritime Safety Committee shall be taken to mean references to the Conference. (d). (i). A Contracting Government which has accepted an amendment to the annex which has entered into force shall not be obliged to extend the benefit of the present Convention in respect of the certificates issued to a ship entitled to fly the flag of a State the Government of which, pursuant to the provisions of subparagraph (b)(vi)(2) of this article, has objected to the amendment and has not withdrawn such an objection, but only to the extent that such certificates relate to matters covered by the amendment in question. (ii). A Contracting Government which has accepted an amendment to the annex which has entered into force shall extend the benefit of the present Convention in respect of the certificates issued to a ship entitled to fly the flag of a State the Government of which, pursuant to the provisions of subparagraph (b)(vii)(2) of this article, has notified the Secretary-General of the Organization that it exempts itself from giving effect to the amendment. (e). Unless expressly provided otherwise, any amendment to the present Convention made under this article, which relates to the structure of a ship, shall apply only to ships the keels of which are laid or which are at a similar stage of construction, on or after the date on which the amendment enters into force. (f). Any declaration of acceptance of, or objection to, an amendment or any notice given under subparagraph (b)(vii)(2) of this article shall be submitted in writing to the Secretary-General of the Organization, who shall inform all Contracting Governments of any such submission and the date of its receipt. (g). The Secretary-General of the Organization shall inform all Contracting Governments of any amendments which enter into force under this article, together with the date on which each such amendment enters into force».

¹⁴³ See note 51 of this chapter.

¹⁴⁴ IMO official website www.imo.org.

¹⁴⁵ In 2010, in the Philippines, IMO concluded a huge amendment process of the STCW, in order to improve its effectiveness. These modifications to the STCW are known as the "Manila amendments".

¹⁴⁶ The amendment procedure is regulated by STCW Convention, Article XII.

The current configuration of the treaty consists of eight chapters and one Code (the STCW Code). According to Article III of the STCW, the Convention regulates the training and formation of the:

«[...] seafarers serving on board sea-going ships entitled to fly the flag of a party [...]»¹⁴⁷.

Finally, the COLREGs convention precisely deals with the regulation of the circulation of the ships, in order to avoid the risk of collisions between them. Adopted in 1972, entered into force six years later, it has substituted the previous version adopted in 1960. As well as for the SOLAS, the circulation of more than 99% of the world's gross tonnage is regulated by COLREGs rules and standards¹⁴⁸. The scope of application of the convention covers the circulation of every «vessel»¹⁴⁹ at sea. The Convention is composed of six parts and four annexes¹⁵⁰; its text can be modernized by the Parties according to the amendment procedure fixed by Article VI¹⁵¹.

¹⁴⁷ STCW Convention, art. III.

¹⁴⁸ See note 52 of this chapter.

¹⁴⁹ This generic term is conventionally defined in COLREGs Convention, Rule 3 (a): «The word “vessel” includes every description of water craft, including non-displacement craft, WIG craft and seaplanes, used or capable of being used as a means of transportation on water». To more information about the definition of “ship” and “vessel” in International Law, see section 3(a) of the second chapter of this research.

¹⁵⁰ Precisely, annex I deals with the positioning and technical details of lights and shapes; annex II with additional signals for fishing vessels fishing in close proximity; annex III with technical details of sounds signal appliances; annex IV with distress signals, which lists the signals indicating distress and need of assistance.

¹⁵¹ COLREGs Convention, article VI: «1. Any amendment to the Regulations proposed by a Contracting Party shall be considered in the Organization at the request of that Party. 2. If adopted by a two-thirds majority of those present and voting in the Maritime Safety Committee of the Organization, such amendment shall be communicated to all Contracting Parties and Members of the Organization at least six months prior to its consideration by the Assembly of the Organization. Any Contracting Party which is not a Member of the Organization shall be entitled to participate when the amendment is considered by the Assembly. 3. If adopted by a two-thirds majority of those present and voting in the Assembly, the amendment shall be communicated by the Secretary-General to all Contracting Parties for their acceptance. 4. Such an amendment shall enter into force on a date to be determined by the Assembly at the same time of its adoption, unless, by a prior date determined by the Assembly at the same time, more than one third of the Contracting Parties notify the Organization of their objection to the amendment. Determination by the Assembly of the dates referred to in this paragraph shall be by a two-thirds majority of those present and voting. 5. On entry into force any amendment shall, for all Contracting Parties which have not objected to the amendment, replace and supersede any previous provision to which the amendment refers. 6. The Secretary-General shall inform all Contracting Parties and Members of the Organization of any request and communication under this article and the date on which any amendment enters into force».

From a formal perspective, the above-mentioned treaties are similar to UNCLOS, in the sense that they set international obligations over the flag States¹⁵². From a substantial one, instead, IMO conventions strongly differ from the latter, because they *usually* provide very specific provisions; this characteristic is coherent with the object and purpose of these treaties, which is to provide international standard about the performance of the activity of navigation¹⁵³.

Finally, another peculiar quality characterizing IMO treaties is their “general accepted applicability”. Given their nature of conventional norms¹⁵⁴ and given the fact that they are signed by a large number of States, they set rules and standards over a vast part of the international community. Thus, recalling the mentioned locution of “generally accepted international rules and standards” provided by UNCLOS, this means that the application of their provisions further extends; accordingly, they have to be taken into account not only by States that signed them¹⁵⁵, but also by all States parties to the UNCLOS, even if they are not technically bound to the former¹⁵⁶. In other words, the reference to the IMO rules and standards provided by UNCLOS has two goals: from one side, it aims to provide a degree of dynamism of the UNCLOS legal system¹⁵⁷, from the other side, it allows to enlarge the scope of application of the “generally accepted international rules and standards” contained in IMO conventions, which otherwise, would only be binding for States parties to them.

¹⁵² This is not a casualty; accordingly, the adoption in UNCLOS of the so-called “*Thames formula*” was just inspired by IMCO’s efforts in drafting international conventions on navigation. ALLEN C., *Revisiting the Thames Formula*, cit., p. 268. The author defines this normative strategy as the “*Thames formula*”, an allusion to the London riverside location of the IMO.

¹⁵³ Not every IMO rules are technical and specific. Indeed, there are also general provisions, which guarantee some physiological flexibility to the system. Just to provide one example – as it will be observed in section 5 (a) of this chapter – rules on manning are quite generic. In any case, the majority of IMO provisions are more technical and detailed rather than UNCLOS rules.

¹⁵⁴ Obviously, SOLAS, STCW and COLREGs are international treaties. Indeed, they reflect the elements characterizing international treaties codified by the Vienna Convention on the Law of Treaties (VCLT), 1969, art. 2,1(a).

¹⁵⁵ Statute of the International Court of Justice (ICJ), 1945, art. 38,1(a).

¹⁵⁶ ZWINGE T., *Duties of Flag States to Implement and Enforce International Standards and Regulations*, cit., p. 302: «Thus, due to the reference in Article 94 (5) LOSC to “generally accepted regulations, procedures and practices” a flag State might even be bound to a standard although the flag State itself did not specifically adopt it». On the same view, see BECKMAN R.; SUN Z., *The Relationship between UNCLOS and IMO Instruments*, cit., p. 226. Then, with specific regard to COLREGs rules, it is interesting to note that the arbitral tribunal in the South China Sea Arbitration affirmed that, their violation configures a breach of UNCLOS (precisely, art. 4), since their nature of globally accepted rules and standards (See Hearing Transcript, 11 July 2019, 68:19-69:1, referring to PCA Case No. 2013-19: *The South China Sea Arbitration* (The Republic of Philippines v. The People’s Republic of China), Award of 12 July 2016, para. 1083.

¹⁵⁷ See section 3(b) of this chapter.

Furthermore, this peculiarity determines another collateral consequence, *i.e.* the possibility for a State to claim the eventual non-compliance with IMO rules and standards through the *mechanism of dispute settlement provided by UNCLOS*. As known, Part XV of UNCLOS sets a composite system for the resolution of international disputes concerning the interpretation and the application of the Convention¹⁵⁸. Precisely, it builds a regime of *compulsory jurisdiction*¹⁵⁹ articulated in many solutions given to States¹⁶⁰, in order to solve their disputes:

«[...] by peaceful means in accordance with Article 2, paragraph 3, of the Charter of the United Nations»¹⁶¹.

Once ascertained the belonging of the IMO provisions within the “UNCLOS framework”¹⁶², even international disputes concerning their interpretation and application could fall into the jurisdiction of the means for the settlement of disputes listed in Part XV of UNCLOS. This conclusion is also reached by the reading the UNCLOS itself, pursuant to which:

«A court or tribunal referred to in article 287 shall also have jurisdiction over any dispute concerning the interpretation or application of *an international agreement related to the purposes of this Convention*, which is submitted to it in accordance with the agreement»¹⁶³.

¹⁵⁸ To more in this regard, see TREVES T., *A System for Law of the Dispute Settlement*, in FREESTONE D.; BARNES R.; ONG D. (eds.), *The Law of the Sea. Progress and Prospects*, New York, 2006, p. 417-432.

¹⁵⁹ The compulsory nature of UNCLOS mechanism of dispute settlement is confirmed by the reading of article 286: «[...] any dispute concerning the interpretation or application of this Convention shall, where no settlement has been reached by recourse to section 1, be submitted at the request of any party to the dispute to the court or tribunal having jurisdiction under this section». Among others, this topic is in- depth analyzed by BOYLE A., *UNCLOS dispute settlement and the uses and abuses of part XV*, *Revue Belge de Droit International* Belgian Review of International Law, 2014, p. 182-204; KLEIN N., *Dispute Settlement in the UN Convention on the Law of the Sea*, Cambridge, 2005.

¹⁶⁰ Art. 287, 1 of UNCLOS lists four alternative means for the settlement of disputes concerning the interpretation and the application of the Convention: (a) the International Tribunal for the Law of the Sea established in accordance with Annex VI; (b) the International Court of Justice; (c) an arbitral tribunal constituted in accordance with Annex VII; (d) a special arbitral tribunal constituted in accordance with Annex VIII for one or more of the categories of disputes specified therein. The subsequent paragraphs of art. 287 set the specific modalities of coordination of the preferences expressed by States parties about the preferred means for settlement of disputes.

¹⁶¹ UNCLOS, art. 279.

¹⁶² See note 115 of this chapter.

¹⁶³ UNCLOS, art. 288, 2 (emphasis added). Consistently, in 2020, the arbitral tribunal constituted under annex VII of UNCLOS considered in the “*Enrica Lexie*” case the compliance of both States (Italy and India) with COLREGs provisions, since their nature of generally accepted rules and practices. *The “Enrika Lexie” Incident* (Italy v. India), Award of 21 May 2020, (PCA Case No. 2015-28), paras. 565-

e) Ad interim conclusions

In conclusion to the present section of the chapter, it seems appropriate to summarize some key aspects that emerged from the description of the international legal framework regulating the human activity of navigation. As observed before, this set of rules consists of customary and conventional rules belonging to the international regime of the Law of the Sea. Reflecting their typical State-centeredness nature, they mainly prescribe duties on the flag States about the construction, the manning, the use of ships and the training of their crews. These rules are finalized to ensure the maximum level achievable in terms of safety of navigation. More general prescriptions are provided by the UNCLOS, which builds a normative framework imposing States to conform to the “generally accepted international rules and standards”¹⁶⁴. The latter rules, drafted by the “competent international organization”, are usually set by the IMO treaties, among which the SOLAS, the STCW and the COLREGs stand for relevance. The wide acceptance and applicability of these treaties¹⁶⁵ realizes the dynamism in the process of regulating the evolving activity of navigation inspired by UNCLOS.

575. For a comment on this arbitral award, see RONZITTI N., *Il caso della Enrika Lexie e la sentenza arbitrale nella controversia Italia-India*, *Rivista di diritto internazionale*, 2020, p. 937-958.

¹⁶⁴ RINGBOM H., *Legalizing Autonomous Ships*, cit., p. 458: «Through such references in several parts of UNCLOS, IMO is granted a central regulatory role, while UNCLOS maintains its function as a living, dynamic constitution that can be adapted to technological developments and the evolving needs of the international community, without compromising the international nature of the regulation of shipping».

¹⁶⁵ *Implications of the United Nations Convention on the Law of the Sea for the International Maritime Organization*, Document I:\LEG\MISC\7.doc, January 19, 2012, p. 18; HARRISON J., *Making the Law of the Sea*, New York, 2011; CHRISTODOULOU VAROTSI L., *Maritime Safety Law and Policies of the European Union and the United States of America: Antagonism or Synergy?*, Heidelberg, 2008, p. 67.

4. The legal analysis of human involvement in the activity of navigation

Once clarified and described the “borders” of the international legal framework on safety of navigation, the remaining part of this research will be dedicated to the analysis of its rules specifically dealing with human involvement in the activity navigation. As outlined at the beginning of this chapter, navigation is here intended as a composite activity based on the *subjective* (human involvement) and the *objective* (ships) elements¹⁶⁶. Consistently, the analysis of the international rules on safety of navigation can be sub-divided into two main categories, reflecting the proposed conceptualization of “navigation”.

Following this methodological classification, the present section does not deal with the construction, the equipment and the design of ships (objective element). Indeed, although they are surely relevant in defining how the human involvement in navigation is concretely performed¹⁶⁷, the present section exclusively dwells on the first of the aforementioned sub-sets of rules, here defined as the *provisions concerning the ergonomics of navigation*. This analysis follows the path highlighted by IMO in its resolutions A.850(20) of 1997¹⁶⁸ and A.947(23) of 2003¹⁶⁹, enshrining the pivotal centrality of the *human element* in the performance of the activity of navigation.

With exclusive regard to the ergonomics of navigation, thus, art. 94,3 of UNCLOS imposes on States to ensure that ships flying their flag shall comply with international rules and standards concerning:

«the manning of ships», «labour conditions and the training of crews» and «[...] the prevention of collisions»¹⁷⁰.

Accordingly, the structure of the present section will follow the classification inspired by UNCLOS. Section 4(a) will address the international regulation concerning

¹⁶⁶ See section 2(b) of the present chapter.

¹⁶⁷ Ibid.

¹⁶⁸ IMO resolution Human Element Vision, Principles and Goals for the Organization, A.850(20), adopted on 27 November 1997.

¹⁶⁹ IMO resolution Human Element Vision, Principles and Goals for the Organization, A.947(23), adopted on 27 November 2003.

¹⁷⁰ UNCLOS, art. 94,3.

the manning of ships (*quantity* of sea-workers), while section 4(b) will describe the regulation on training and formation of the actors of navigation (*quality* of sea-workers); then, section 4(c) will deal with the regulation of circulation of ships (*activity* of sea-workers)¹⁷¹. The outlined normative analysis is finalized to go deeper in the understanding of how the Law of the Sea regulates the ergonomics of navigation and to describe the scope of application of these rules. Conclusively, section 4(d) will analyze the international legal status of the two most important maritime working figures: the *master* and the *seafarer*. This study will acquire pivotal importance for the following analysis on the legal implications arising from the use of MASS¹⁷². As it has been noted by the IMO itself, indeed:

«[...] some common potential gaps and/or themes were regarded as high-priority issues that cut across several IMO instruments and might require a policy decision before addressing individual instruments. Among those are, for instance:

- .1 meaning of the terms *master*, *crew* or responsible person;
- .2 remote control station/centre; and
- .3 *remote operator designated as seafarer*»¹⁷³.

a) The manning of ships

While it is true that navigation occurs when – at least – a minimum number of persons uses a ship for crossing waters (contextual existence of both the subjective and objective elements), it is also true that, the performance of *safe navigation* requires a number of people adequate to the design of the vessel. Broadly speaking, among the various subjective conditions for ensuring the safety of navigation, one of the most relevant is that *the number of physical actors involved shall be sufficient and proportionate in respect of the specific features of the ship*. From a terminological point

¹⁷¹ LIRUI, *On the Legal Status of Unmanned Ships*, cit., p. 12: «These three regulations [art. 93,3 letters a) b) and c) of UNCLOS] also correspond to the International Convention for the Safety of Life at Sea [...], the COLREGs, and the International Convention on Standards of Training, Certification, [...] issued by the IMO».

¹⁷² See section 5 of this chapter.

¹⁷³ IMO RSE, p. 9 (emphasis added).

of view, international norms dealing with this requirement are called *rules on themanning of the ships*.

International Law prescribes flag States to ensure that ships flying their flag shall be adequately manned. This general requirement, provided in art. 94,3(c) of UNCLOS, is confirmed and further completed by the international rules and standards drafted under the IMO's auspices.

Precisely, reg. V/14,1 of SOLAS states that:

«Contracting Governments undertake, each for its national ships, to maintain, or, if it is necessary, to adopt, measures for the purpose of ensuring that, from the point of view of safety of life at sea, *all ships shall be sufficiently and efficiently manned*»¹⁷⁴.

From a first reading, this provision does not establish a specific number of sea workers to comply with the SOLAS requirement; moreover, it does not even identify when a certain level of manning may be considered “sufficient” and/or “efficient”¹⁷⁵. This is because, intuitively enough, an optimum safe manning level cannot be abstractedly fixed and imposed concerning every type of ship; indeed, very much depends on their size, the level of technology achieved, the aids to navigation installed on board, the training of personnel, and so on¹⁷⁶. Furthermore, experts observed that States' decisions on manning levels traditionally differ one from each other; intuitively, different maritime cultures reflect diverse perceptions about the concept of safe manning¹⁷⁷.

¹⁷⁴ SOLAS Convention, reg. V/14,1 (emphasis added). Similarly, see art. 21 of the Convention on Wages, Hours of Work and Manning (Sea) prescribes an analogous provision in its article 21: «Every vessel to which this Convention applies shall be sufficiently and efficiently manned [...]». This convention, drafted and promoted by the International Labour Organization in 1946 (text revised in 1949 and 1958), is not currently in force, because it has not reached yet a sufficient number of ratifications.

¹⁷⁵ The same normative strategy is adopted by SOLAS also concerning the manning of the survival crafts. Indeed, reg. III/10,2 and 3 states that: «2 There shall be a sufficient number of trained persons on board for mustering and assisting untrained persons. 3 There shall be a sufficient number of crew members, who may be deck officers or certificated persons, on board for operating the survival craft launching arrangements required for abandonment by the total number persons on board».

¹⁷⁶ For a practical analysis on the factors influencing the safe manning level, see LJUNG, M., *Function Based Manning and Aspects of Flexibility*, WMU Journal of Maritime Affairs, 2010, p. 121- 133; US National Research Council, *Crew Size and Maritime Safety*, Washington DC, 1990.

¹⁷⁷ BERG N.; STORGARD J.; LAPPALAINEN J., *The Impact of Ship Crews on Maritime Safety*, cit., p. 22-35. Again, see what was observed by IMO in IMO, MSC 100/INF.3, Regulatory Scoping Exercise for the Use Of Maritime Autonomous Surface Ships (MASS), 9 August 2018, Annex, p. 16: «Regulation V/14.1 does not change the fact that safe manning levels are subject to the flag State's subjective assessment as regards when a ship's manning is "appropriate in qualification and numbers" and the ship can be considered "sufficiently and efficiently manned"».

For the above reasons, reg. V/14,1 of SOLAS sets a general duty, according to which *the concrete decisions on the manning of ships shall be taken by flag States on the basis on safety grounds*¹⁷⁸.

This does not mean that IMO law leaves States completely free in establishing the minimum safe manning level. In order to guide their decisions in this regard, in 2011, the IMO Assembly has laid down the main guidelines concerning the identification of adequate safe manning levels¹⁷⁹. These recommendations encourage States to approach the matter following a *holistic approach*: their competent national administrations shall take into account every relevant factor, concerning both the objective and the subjective elements of navigation¹⁸⁰. Among them, IMO explicitly mentions the size and type of ships, the training and formation of sea-workers, the watch-keeping requirements and the technical modalities the control of the ships.

Moreover, many IMO conventions on safety of navigation are replete with specific provisions dealing with the abovementioned matters¹⁸¹. Allegedly, these norms (indirectly) provide States further normative parameters for adopting a safe manning policy. As it is remarked by the guidelines:

«In applying such principles, Administrations should take proper account of existing IMO [...] instruments in force»¹⁸².

Besides, what emerges from the reading of the IMO Assembly resolution of 2011 is that, for what concerns the level of manning, the concept of “safety” has to be intended broadly; navigation is “safe” not just when it concretely protects the life of people on board the ship, but also when it impacts as little as possible to the *marine*

¹⁷⁸ RINGBOM H., *Regulating Autonomous Ships*, cit., p. 157.

¹⁷⁹ IMO, Principles of Minimum Safe Manning, A 27/Res.1047, 20 of December 2011.

¹⁸⁰ IMO, Principles of Minimum Safe Manning, cit., Annex 2, p. 5: «The minimum safe manning of a ship should be established taking into account all relevant factors, including the following: .1 size and type of ship; .2 number, size and type of main propulsion units and auxiliaries; .3 level of ship automation; .4 construction and equipment of the ship; .5 method of maintenance used; .6 cargo to be carried; .7 frequency of port calls, length and nature of voyages to be undertaken; .8 trading area(s), waters and operations in which the ship is involved; .9 extent to which training activities are conducted onboard; .10 degree of shoreside support provided to the ship by the company; .11 applicable work hour limits and/or rest requirements; and .12 the provisions of the approved Ship's Security Plan».

¹⁸¹ Just to provide some examples, technical standards for what concerns the training and formation of sea workers are provided by STCW Convention, specific provisions on watch-keeping are in SOLAS and COLREGs conventions, and so on.

¹⁸² IMO, Principles of Minimum Safe Manning, cit., Annex 3, p. 9.

*environment*¹⁸³; in few words, States' decisions on manning levels have to take into account environmental grounds¹⁸⁴.

In addition to the general requirement provided by reg. V/14,1, IMO law prescribes a further obligation over flag States: in order to ensure that the level of manning established for every single ship complies with all possible safety concerns, the SOLAS Convention poses on States a procedural duty¹⁸⁵, according to which domestic administrations shall issue a "*minimum safe manning document*" to every ship flying their flag¹⁸⁶. This duty imposes on the flag States to effectively preside and supervise the entire procedure for the drafting of the document¹⁸⁷. The correct completion of this document shall prove that the adopted manning level is:

«adequate in all respects for the safe operation and the security of the ship»¹⁸⁸.

In synthesis, what emerges from the reading of the IMO provisions on the manning of ships is that the adequate number of sea workers involved in navigation has to be established by the flag States according to safety grounds¹⁸⁹. In this respect, States enjoy a wide margin of appreciation in establishing the minimum safe manning for ships flying their flag. This is because *International Law does not fix a specific number of sea-workers that satisfies such a request*. Instead, it limitedly guides flag States in

¹⁸³ IMO, Principles of Minimum Safe Manning, cit., Annex 1, p. 3: «The objectives of these Guidelines are to ensure that a ship is sufficiently, effectively and efficiently manned to provide safety and security of the ship, safe navigation and operations at sea, safe operations in port, prevention of human injury or loss of life, *the avoidance of damage to the marine environment* and to property, and to ensure the welfare and health of seafarers through the avoidance of fatigue» (emphasis added).

¹⁸⁴ IMO, Principles of Minimum Safe Manning, cit., p. 1. «Nothing that safe manning is a function of the number of qualified and experienced seafarers necessary for the safety and security of the ship, crew, passengers, cargo and property and for the protection of the marine environment».

¹⁸⁵ SOLAS Convention, regulation V/14,2: «Every ship to which chapter I applies shall be provided with an appropriate minimum safe manning document or equivalent issued by the Administration as evidence of the minimum safe manning considered necessary to comply with the provisions of paragraph 1».

¹⁸⁶ A model of the minimum safe manning document is given by IMO at p. 11 of IMO, Principles of Minimum Safe Manning, cit.

¹⁸⁷ IMO, Principles of Minimum Safe Manning, cit., Annex 4, p. 10.

¹⁸⁸ IMO, Principles of Minimum Safe Manning, cit., p. 9.

¹⁸⁹ SCHELIN J., *Manning of Unmanned Ships*, in RINGBOM H.; RØSÆG E.; SOLVANG T., (eds.), *Autonomous Ships and the Law*, New York, 2020, p. 267: «As a general principle, the minimum crew shall be of such size and composition that it enables the safe manoeuvring and navigation of the ship and the operation and monitoring of the machinery, as well as the maintenance of the ship of the ship and the equipment of importance for the safety, fire safety, and life rescue duty, radio communication, and catering service».

carrying out this process in two ways. First, it obliges them to approach this matter in a holistic way, and so taking into account every possible critical issue broadly dealing with safety of navigation; second, it sets bureaucratic and procedural obligations for the completion of the “minimum safe manning document”, with the aim to internationally standardize the control over the safe manning of the ships.

b) Training of the actors of navigation

The mere fact that a ship is “sufficiently manned” does not guarantee *per se* safety of navigation. Beyond the number of actors involved in navigation (*quantity*), even their *quality* plays a decisive role: the training and formation of sea workers is another fundamental criterion for evaluating the level of safety raised by States about the navigation of ships flying their flag. Notoriously, indeed, a huge number of maritime accidents are the result of:

«[...] deficiencies in crew competence, due in part to continuous changes of crew and to inadequate systems of training by some national authorities and companies»¹⁹⁰.

International Law is replete with specific rules and standards on this matter¹⁹¹. Historically, the first normative interventions occurred under the auspices of the ILO¹⁹². In 1936, the Organization drafted the Officers’ Competency Certificates Convention¹⁹³; ten years later, it promoted the Certification of Able Seamen Convention¹⁹⁴. More recently (in 2006), ILO drafted the *Maritime Labour Convention* (MLC), currently in

¹⁹⁰ PINIELLA F.; SILOS J.M.; BERNAL F., *The Protection of Seafarers: State Practice and the Emerging New International Regime*, State Practice & International Law Journal (SPILJ), 2015, p. 47.

¹⁹¹ PETRINOVIĆA R.; MANDIĆA N.; SIRIŠČEVIĆ E., *The Importance of Maritime Law in Seafarer Training Pursuant to Amendments to the STCW Convention*, Transaction on Maritime Science, 2016, p. 53.

¹⁹² The topic is deeply analyzed in MANUEL M.E., BAUMLER R., *The Evolution of Seafarer Education and Training in International Law*, in MUKHERJEE P., MEJIA, JR. M., XU J. (eds), cit., p. 475-477; ZANOBBETTI PAGNETTI A., *Il rapporto internazionale di lavoro marittimo*, Bologna, 2008, p. 217-237.

¹⁹³ Officers’ Competency Certificates Convention, 1936, entered into force in 1939. To date, 37 States are parties to the convention.

¹⁹⁴ Certification of Able Seamen Convention, 1946, entered into force in 1951. To date, 29 States are parties to the treaty.

force since 2013¹⁹⁵; to date, the treaty has been signed by 91 States, representing 91% of the world's gross tonnage.

The regulation on certification and training of sea-workers has been intensively addressed by the IMO too. As previously pointed out¹⁹⁶, the IMO coordinated the drafting of an international convention precisely dealing with the formation and training of the actors of navigation: the STCW. As it has been already told, the purpose of this treaty is to provide:

«minimum standards relating to training, certification and watch-keeping for seafarers»¹⁹⁷.

STCW aims to internationally standardize the minimum level of formation and training of the human actors of navigation. To pursue this rationale, the drafters opted to adopt a “prescriptive approach”: the convention is not limited to provide just general obligations, instead, it sets an overflowing body of detailed technical requirements concerning the training of the human actors of navigation¹⁹⁸.

Precisely, these rules deal with control procedures¹⁹⁹, minimum requirements for certifications of the various figures of navigation²⁰⁰, maritime training programs²⁰¹ and the configuration of basic principles concerning watch-keeping systems²⁰². In this respect, the regulations of the Convention set the main requirements, which are further specified by the STCW Code²⁰³.

In order to fulfill their goals, STCW regulations need to be as much as possible adherent with the ergonomics of navigation. This also means, however, that they must

¹⁹⁵ Among others, for a complete analysis on the MLC Convention, see McCONNELL M.; DEVLIN D.; DOUMBIA-HENRY C., *The Maritime Labour Convention 2006*, Leiden/Boston, 2011.

¹⁹⁶ See section 3(d) of the present chapter.

¹⁹⁷ IMO official website www.imo.org. For more information in this regard, see ZANOBETTI PAGNETTI A., *Il rapporto internazionale di lavoro marittimo*, cit., p. 238-240

¹⁹⁸ MANUEL M.E., BAUMLER R., *The Evolution of Seafarer Education and Training in International Law*, in MUKHERJEE P., MEJIA, JR. M., XU J. (eds), cit., p. 479: «In legal terms, the Convention is a public international law instrument and is *in nature technical, regulatory and preventive*»(emphasis added).

¹⁹⁹ STCW, reg. I/4.

²⁰⁰ SCTW, regs. II/2, II/3, II/4, II/5, III/2, III/3, III/4, III/5, IV/I and IV/2.

²⁰¹ STCW, regs. V/1-1, 1-2, 2 and 3.

²⁰² STCW, regs. II/1 and III/1.

²⁰³ More precisely, the STCW code is composed of two parts. While Part A (which provides standards of training, certification and watch-keeping for sea-workers is mandatory, Part B merely provides recommendations for helping States to correctly implement the Convention. This normative strategy was adopted after the amendments of 1995.

be constantly modified and adapted following the technological evolution of human involvement in navigation. From this side, a full revision of STCW occurred in 1995²⁰⁴. The original text of 1978 has been largely modified by this normative review, that was aimed not only to adjourn but also to make more precise and technical the regulation set in the previous version²⁰⁵. More recently, in 2010, the Convention has been modernized again by the so-called “Manila amendments”²⁰⁶. For what concerns this last revision process, one of its main tasks was to ensure that:

«[...] the necessary global standards will be in place to train and certify seafarers to operate technologically advanced ships for some time to come»²⁰⁷.

Indeed, the revised version of the STCW has set new requirements concerning training activities in modern technology, such as electronic charts and information systems (ECDIS); then, it has introduced updated training methodologies, including distance and web-based learning; again, it has provided new training and certification requirements for electro-technical officers²⁰⁸.

Once highlighted the essential features characterizing the international regulatory framework object of analysis, it is now possible to set some conclusive remarks about the nature of the STCW provisions. As previously pointed out, when dealing with the training and certification of the human actors of navigation, the Law of the Sea imposes specific and detailed minimum standards over flag States. The adoption of a

²⁰⁴ For a detailed report on the history of the revision process of STCW occurred in 1995, see the IMO document ‘The new STCW Convention The 1995 amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978, March 1997’, available online.

²⁰⁵ MANUEL M.E., BAUMLER R., *The Evolution of Seafarer Education and Training in International Law*, in MUKHERJEE P., MEJIA, JR. M., XU J. (eds), cit., p. 481; PINIELLA F.; SILOS J.M.; BERNAL F., *The Protection of Seafarers: State Practice and the Emerging New International Regime*, cit., p. 47.

²⁰⁶ Conference of Parties to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 Agenda Item 10; *Adoption of the Final Act and any Instruments, Resolutions and Recommendations Resulting from the Work of the Conference*, STCW/CONF.2/33 1 July 2010.

²⁰⁷ MADARIAGA DOMÍNGUEZ, E.; ORTEGA, A.; MARTÍNEZ M., JESÚS E., *How the Manila Amendments to the STCW code enhance training in the maritime safety and security*, Iniciativa Digital Politécnica, 2014, p. 183.

²⁰⁸ IMO official website www.imo.org. Manila amendments are also relevant for having introduced new regulations on the maximum hours of work and minimum rest breaks, and new provisions dealing with the sadly known phenomenon of drug addiction and alcoholism on board. See PINIELLA F.; SILOS J.M.; BERNAL F., *The Protection of Seafarers: State Practice and the Emerging New International Regime*, cit., p. 47.

“prescriptive approach” is finalized to delimit the sovereignty of States when complying with International Law; the scope of application of these rules is highly specific, leaving States a restricted margin of appreciation in complying with them²⁰⁹.

In the author’s view, the chosen normative technique determines two important consequences: first, the field of training and formation of sea-workers tends to be over-regulated; second, these rules are rigid and, usually, incapable of dealing with innovative cases. Taken together, these two peculiarities impose to constantly update this field through review processes, fueling a vicious circle: the more rules are produced, the more technical they are; consequently, new amendments are constantly required for adapting the legal system to new concrete needs rising from new technological developments.

In comparison with the regulation of the manning of ships, therefore, the normative strategy adopted by the IMO in this regard moves in the opposite direction. Indeed, unlike what previously affirmed about reg. V/14 of SOLAS, STCW rules do not set general obligations over flag States, leaving them free to choose the concrete modalities to achieve the intended goals. Logically, different normative approaches allow different margins of interpretation of the norms. Intuitively, the scope of the international rules on the manning of ships seems to have a broader application rather than that of the norms on the training of sea-workers, which appears to be more precise and strictly defined, and so also more limited in regulating new methods of performance of the activity of navigation caused by technological innovations.

c) The regulation of circulation of ships

The previous two sections have described the international regulation on the levels of quantity (manning levels) and quality (training and certification procedures) of sea-workers required by the law for ensuring safety of navigation; intuitively, the already analyzed provisions deal with the process of *formation* of the subjective element involved in navigation.

²⁰⁹ MANUEL M.E., BAUMLER R., *The Evolution of Seafarer Education and Training in International Law*, cit., p. 485-486.

In order to ensure safety of navigation, IMO law does not limitedly require that the crew must be adequate to the features of the ship and that it shall be sufficiently prepared for crossing the seas; it also sets legal requirements concerning the *performance of the activity of navigation itself*. Precisely, the present section addresses the international regulation of the *circulation of ships*. These international rules deal with the ergonomic behaviours of sea-workers²¹⁰: they define the legal parameters aimed at ensuring that the human activity of navigation is performed in the safest possible way.

Unlike what was observed when dealing with the constitution of the crew, the regulation of the circulation of ships is quite fragmentary and variegated. Accordingly, this set of rules is composed of many different provisions, some of them widely general, while others extremely technical. Moreover, these standards are not provided in one single IMO convention, but in a plurality of them, among which COLREGs, STCW and SOLAS stand for relevance.

With regard to the more generic provisions, COLREGs rules 2 and 8 provide that sea-workers shall navigate in compliance with the *ordinary practice of seamen*²¹¹. According to this general requirement, human actors of navigation must always act in a cautious, thoughtful and predictable way. The request to comply with the “*good seamanship*” standard of care²¹² introduces a «general prudential principle»²¹³, which is declined in more specific obligations. Just to provide some examples, rule 6 of COLREGs requires vessels to proceed at a safe speed²¹⁴; then, rule 7 imposes to use:

²¹⁰ O’CONNELL D. P., *The International Law of the Sea*, cit., p. 828.

²¹¹ COLREGs, rule 2(a): «Nothing in these Rules shall exonerate any vessel, or the owner, master or crew thereof, from the consequences of any neglect to comply with these Rules or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case»; rule 8(a): « Any action to avoid collision shall be taken in accordance with the Rules of this Part and shall, if the circumstances of the case admit, be positive, made in ample time and with due regard to the observance of good seamanship».

²¹² COLREGs, rule 8(a).

²¹³ *The “Enrika Lexie” Incident* (Italy v. India), Award of 21 May 2020, (PCA Case No. 2015-28), par. 571. In this regard, see STEVENS F., *Seaworthiness and Good Seamanship in the Age of Autonomous Vessels*, in RINGBOM H.; RØSÆG E.; SOLVANG T., (eds.), *Autonomous Ships and the Law*, New York, 2020, p. 251-253.

²¹⁴ COLREGs, rule 6: « Every vessel shall at all times proceed at a safe speed so that she can take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions. In determining a safe speed the following factors shall be among those taken into account:

(a). By all vessels: (i). the state of visibility; (ii). the traffic density including concentrations of fishing vessels or any other vessels; (iii). the manoeuvrability of the vessel with special reference to stopping distance and turning ability in the prevailing conditions; (iv). at night the presence of

«all available means appropriate to the prevailing circumstances and conditions to determine if risk of collision exists»²¹⁵.

Again, rule 14 shows the correct modalities for dealing with a *head on situation*, namely when two ships meet on reciprocal courses involving a potential risk of collision²¹⁶.

Among the requirements delineating the concept of a safe circulation of ships, IMO law attaches pivotal importance to *look-out activities*. Accordingly, rule 5 of COLREGs states that:

«Every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision»²¹⁷.

In order to guarantee that a proper look-out must always occur in navigation, IMO builds a detailed normative framework, involving the design of ships, their manning level and the formation of sea-workers. About the first two elements, SOLAS sets specific requirements in its regs. IV/12²¹⁸, V/24,2²¹⁹ and V/19²²⁰. Instead, as far as the

background light such as from shore lights or from back scatter of her own lights; (v). the state of wind, sea and current, and the proximity of navigational hazards; (vi). the draught in relation to the available depth of water.

(b). Additionally, by vessels with operational radar: (i). the characteristics, efficiency and limitations of the radar equipment; (ii). any constraints imposed by the radar range scale in use; (iii). the effect on radar detection of the sea state, weather and other sources of interference; (iv). the possibility that small vessels, ice and other floating objects may not be detected by radar at an adequate range; (v). the number, location and movement of vessels detected by radar; (vi). the more exact assessment of the visibility that may be possible when radar is used to determine the range of vessels or other objects in the vicinity».

²¹⁵ COLREGs, rule 7(a).

²¹⁶ COLREGs, rule 14: «(a). When two power-driven vessels are meeting on reciprocal or nearly reciprocal courses so as to involve risk of collision each shall alter her course to starboard so that each shall pass on the port side of the other.

(b). Such a situation shall be deemed to exist *when a vessel sees* the other ahead or nearly ahead and by night she could see the masthead lights of the other in a line or nearly in a line and/or both sidelights and by day *she observes* the corresponding aspect of the other vessel.

(c). When a vessel is in any doubt as to whether such a situation exists she shall assume that it does exist and act accordingly» (emphasis added).

²¹⁷ COLREGs, rule 5. Moreover, in its rule 19, COLREGs provides further specific provisions dealing with the look-out.

²¹⁸ SOLAS, regulation IV/12: «1 Every ship, while at sea, shall maintain a continuous watch:

.1 on VHF DSC channel 70, if the ship, in accordance with the requirements of regulation 7.1.2, is fitted with a VHF radio installation;

.2 on the distress and safety DSC frequency 2,187.5 kHz, if the ship, in accordance with the requirements of regulation 9.1.2 or 10.1.3, is fitted with an MF radio installation;

formation and certification of sea-workers are concerned, STCW covers a central role²²¹. As observed before, chapter VIII of STCW deals with the establishment of watch-keeping systems. Precisely, reg. VIII/1 of STCW sets the principal requirement²²², according to which:

«Each Administration shall, for the purpose of preventing fatigue:

1. Establish and enforce rest periods for watchkeeping personnel; and
2. Require that watch systems are so arranged that the efficiency of all watchkeeping personnel is not impaired by fatigue and that the duties are so organized that the first watch in the commencement of a voyage and subsequent relieving watches are sufficiently rested and otherwise fit for duty»²²³.

From the reading of all these provisions, it emerges that International Law, when dealing with the performance of the activity of navigation, sets some generic obligations, whose scope of application must be sufficiently broad to be adapted in the light of the existing circumstances²²⁴. Allegedly, the recourse to such a flexibility is not

.3 on the distress and safety DSC frequencies 2,187.5 kHz and 8,414.5 kHz and also on at least one of the distress and safety DSC frequencies 4,207.5 kHz, 6,312 kHz, 12,577 kHz or 16,804.5 kHz, appropriate to the time of day and the geographical position of the ship, if the ship, in accordance with the requirements of regulation 10.2.2 or 11.1, is fitted with an MF/HF radio installation. This watch may be kept by means of a scanning receiver;

.4 for satellite shore-to-ship distress alerts, if the ship, in accordance with the requirements of regulation 10.1.1, is fitted with an Inmarsat ship earth station.

2 Every ship, while at sea, shall maintain a radio watch for broadcasts of maritime safety information on the appropriate frequency or frequencies on which such information is broadcast for the area in which the ship is navigating. 3 Until 1 February 1999 or until such other date as may be determined by the Maritime Safety Committee, every ship while at sea shall maintain, when practicable, a continuous listening watch on VHF channel 16. This watch shall be kept at the position from which the ship is normally navigated».

²¹⁹ SOLAS, regulation 24,2: «1 In areas of high traffic density, in conditions of restricted visibility and in all other hazardous navigational situations where heading and/or track control systems are in use, it shall be possible to establish manual control of the ship's steering immediately.

2 In circumstances as above, the officer in charge of the navigational watch shall have available without delay the services of a qualified helmsperson who shall be ready at all times to take over steering control.

3 The change-over from automatic to manual steering and vice versa shall be made by or under the supervision of a responsible officer.

4 The manual steering shall be tested after prolonged use of heading and/or track control systems, and before entering areas where navigation demands special caution».

²²⁰ SOLAS, regulation V/19(2.1.8): «when the ship's bridge is totally enclosed and unless the Administration determines otherwise, [shall have] a sound reception system, or other means, to enable the officer in charge of the navigational watch to hear sound signals and determine their direction».

²²¹ ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 142-143.

²²² Such general requirement is deeply specified by the STCW code.

²²³ STCW, reg. VIII/1.

²²⁴ RINGBOM H., *Regulating Autonomous Ships – Concepts, Challenges and Precedents*, cit. p. 155.

always effective for ensuring safety of navigation. For this reason, specific matters belonging to this field – such as, for example, watch-keeping systems²²⁵ or the correct use of lights and shapes for signals at sea²²⁶ – are in detail regulated by technical standards.

In any case, the “pulsing heart” of the rules about the circulation of ships is composed of generic provisions. From this perspective, the recourse to the principle of “good seamanship” is of emblematic relevance. Again, this is not the only example that can be provided in this respect. As reported before, in fact, COLREGs requires that look-out activities must be «proper»²²⁷ and that vessels shall proceed at a «safe speed»²²⁸. Intuitively, the recourse to such generic terms is due to the fact that the performance of navigation largely depends on the existing circumstances of the case.

Similarly to the rules on the quality of the subjective element of navigation, even the international norms dealing with the circulation of ships need to be adherent to the ergonomic features of navigation. This means that eventual changes in the ergonomics of navigation may challenge the applicability of these norms. However, since their scope of application is (usually) quite vast, these rules seem more capable of addressing new cases deriving from technological innovations rather than, for example, STCW provisions concerning the training and formation of sea-workers.

d) The legal status of sea-workers

In order to provide a complete panoramic about the international regulation on safety of navigation, the previous analysis on the quantity (a), quality (b) and activity (c) of sea-workers must be completed with one last passage, *i.e.* the description of the legal status of the main physical actors involved in the activity of navigation; the last two parts of section 4 will picture the figures of the *master* and the *seafarer* from an international legal perspective.

²²⁵ As previously analyzed, this field is further regulated by chapter VIII of STCW and by the STCW code.

²²⁶ See COLREGs, Annex I.

²²⁷ COLREGs, rule 5.

²²⁸ COLREGs, rule 6.

At the state of art, the Law of the Sea does not precisely clarify the legal status of the human actors of navigation. In this respect, the adopted normative technique is to refer to the *factual* features of maritime employments, founded on the millenary maritime culture²²⁹. This normative strategy is comprehensible and not questionable as long as the factual roles of “master” and “seafarer” are fixed enough not to generate confusion. However, it looks extremely problematic when these figures are revolutionized by the rise of new technologies. In this eventuality, therefore, legal and factual realities are no longer connected, since the latter has already changed, while the former has not (yet).

Methodologically wise, the proposed research differs depending on which specific maritime figure is analyzed. Indeed, while the “master” is not defined in International Law (except for the STCW²³⁰), the same cannot be said about the “seafarer”.

For what concerns the analysis of the figure of the “master”, section 4(d)(i) will follow a deductive approach: the reconstruction of his/her legal status will be conducted through the analysis of the international rules and standards dealing with his/her role in the performance of navigation. Accordingly, International Law regulates many facets of the shipmaster’s role. Starting from the analysis of these provisions, it will be possible to depict a general definition of the figure of the master for the purposes of this research.

About the legal status of the “seafarer”, instead, International Law is replete with its definitions. Accordingly, section 4(d)(ii), will analyze them in order to extrapolate the essential features and fundamental characteristics of this fundamental maritime working figure.

i) The legal status of the master

Although the international legal framework on safety of navigation does not provide a general definition of “master”²³¹, it is replete with norms dealing with this maritime

²²⁹ See section 2 of this chapter.

²³⁰ STCW, reg. I(c): «*Master* means the person having command of a ship».

²³¹ Except for the STCW Convention. See note 230.

figure. In particular, the before analyzed IMO conventions set rules and standards concerning its fundamental role in the performance of *safe* navigation.

Starting with the SOLAS, the convention sets several regulations concerning the master's job duties. Just to provide few examples, according to reg. II-1/5-1:

«The master shall be supplied with such information satisfactory to the Administration as is necessary to enable him by rapid and simple processes to obtain accurate guidance as to the stability of the ship under varying conditions of service»²³².

Again, the master has to supervise the use of survival crafts²³³, the functioning of the ship reporting system²³⁴ and the adequate visibility from the bridge²³⁵. Moreover, the master shall communicate danger messages to shore operators²³⁶ and assist people in distress at sea²³⁷.

As far as the formation and training of sea-workers is concerned, the STCW provides further regulations dealing with the master. In particular, it sets mandatory minimum requirements for his/her certification²³⁸, and it regulates the master's role in the watch-keeping systems²³⁹.

Finally, the above-analyzed rule 2 of COLREGs refers to the “master” when dealing with the responsibility in the control and the circulation of ships²⁴⁰.

Beyond these conventions – which specifically address the regulation on the conduction of navigation – even international treaties concerning the legal relationships *deriving from and caused by navigation*²⁴¹ set many provisions dealing with this figure. Starting with the UNCLOS, art. 94,4 (b) obliges flag States to make sure that:

«that each ship is in *the charge of a master* and officers who possess appropriate qualifications, in particular in seamanship, navigation, communications and marine engineering [...]»²⁴².

²³² SOLAS, reg. II-1/5-1.

²³³ SOLAS, reg. III/10.

²³⁴ SOLAS, reg. V/11, 7.

²³⁵ SOLAS, reg. V/22.

²³⁶ SOLAS, reg. V/31.

²³⁷ SOLAS, regs. V/33, V/34-1.

²³⁸ STCW, reg. II/2.

²³⁹ STCW, regs. III, V/1-1, 1-2, 2 and 3.

²⁴⁰ COLREGs, rule 2.

²⁴¹ See section 3 of this chapter.

²⁴² UNCLOS, art. 94,4 (b) (emphasis added).

This is not the only UNCLOS provision referring to this working figure; accordingly, the word “master” is even included in arts. 27 and 97, dealing with the allocation of criminal jurisdiction on board ships; in art. 98, regulating the flag and coastal States’ duties of assistance to people in distress at sea²⁴³ and, finally, in art. 211, concerning shipping pollution. For what concerns this last-mentioned topic, even the MARPOL attributes a key role to the shipmaster in the performance of documentary and reporting activities²⁴⁴. In addition, the MLC deals with the masters’ role in the regulation of labour conditions of his/her crew²⁴⁵. Finally, the International Convention on Civil Liability for Bunker Oil Pollution Damage (CLC)²⁴⁶, the Convention on Limitation of Liability for Maritime Claims (LLMC)²⁴⁷ and the Hague Visby Rules regulate master’s civil liabilities related to the conduction of the activity of navigation²⁴⁸.

The reading of all these international rules offers some food for thought.

First, it emerges that the presence of the master is a necessary condition for the configuration of safe navigation, in compliance with what required by the Law of the Sea. Since his/her involvement in navigation has always been considered essential *from a factual point of view*, this figure is also required by the law. In few words, the Law of the Sea wants to align as much as possible with the ergonomics of navigation.

Second, and more importantly, the reported provisions are based on the understanding that the master is the *person in command of the ship*²⁴⁹. Indeed, the connecting element binding all these international rules is the recognition of the master as the “*magister navis*”²⁵⁰: he/she is the person who exercises the decision-making

²⁴³ About master’s duties to render assistance to people in distress at sea, in addition to the above-mentioned regulation V/33(a) and article 98 of UNCLOS, also article 10 of the International Convention on Salvage (1989) provides that: «Every master is bound, so far as he can do so without serious danger to his vessel, and persons thereon, to render assistance to any person in danger of being lost at sea». To more in this regard, see section 2 of the third chapter of this research.

²⁴⁴ See BAUGHEN S., *Who is the master now?*, cit., p. 137.

²⁴⁵ MLC, standard A2.1(d).

²⁴⁶ More precisely, see CLC, article III (4).

²⁴⁷ See LLMC, article 1.4.

²⁴⁸ See Hague Visby Rules, article IV(bis).

²⁴⁹ From this perspective, it is of emblematic value what provided in art. 94,4 (b) of UNCLOS, according to which: «each ship is *in the charge of a master* [...]» (emphasis added).

²⁵⁰ The characteristic feature of the master as the person «in command of a ship» is conventionally defined in reg. I of the STCW Convention.

power in the course of navigation and who bears the responsibilities arising from it²⁵¹. Such position is supported by scholars, according to whom the master is the:

«natural person *who is responsible for a vessel* and all things and persons in it and is responsible for enforcing the maritime laws of the flag state»²⁵².

The same conclusion is reached through the analysis of the general definitions of “master” provided in many domestic legislations. Just to provide some relevant examples, according to the UK national law, the master is the individual in «commandor charge of a ship»²⁵³. Again, the United States legal system defines him/her as «the individual having command of a vessel»²⁵⁴. Moreover, French law describes the «capitaine» as «le patron ou toute autre personne qui exerce de fait le commandement du navire»²⁵⁵. Furthermore, Canadian law defines “master” as «the person in command and charge of the vessel»²⁵⁶.

According to what has been already observed, it should be concluded that *the legal status of the master is founded on his/her position of command and of responsibility on navigation*. This power declines in many shapes and forms depending on which legal system is taken into account. As noted above, the legal relationships related to navigation concern domestic law, international private law and, finally, even International Law. The contextual relevance of this figure into many legal systems comes from the fact that he/she is:

«[...] hired by contract by the owners of the vessels they command, but they are also empowered by the flag State to enforce its laws on those vessels»²⁵⁷.

Therefore, the legal status of the master is not a monolithic concept; using a metaphor, it can be described as a crossroad between many legal systems. Even limiting

²⁵¹ BOISSON P., *Safety at Sea*, cit., p. 307.

²⁵² CARTNER J.; FISKE, R.; LEITER T., *The International Law of the Shipmaster*, cit., p. 86 (emphasis added). This position has been more recently confirmed by VOJKOVIC G.; MILENKOVIC M., *Autonomous Ships and Legal Authorities of the Ship Master*, Case Studies in Transport Policy, 2020, p. 334; SCHELIN J., *Manning of Unmanned Ships*, cit.; BAUGHEN S., *Who is the master now?*, cit.

²⁵³ UK, Merchant Shipping Act, 1995.

²⁵⁴ 46 USCA 10101, 1996.

²⁵⁵ Article 1 of L. 5511-4 of the French Transport Code.

²⁵⁶ Canadian Shipping Act (CSA), 2001, art. 2.

²⁵⁷ DE VITTOR F.; STARITA M., *Distributing Responsibilities between Shipmasters and the Different States Involved in SAR Disasters*, Italian Yearbook of International Law Online, 2019, p. 84.

this analysis to the international legal system, the analysis of the role of the master still raises confusion.

In the first place, it may be questioned if the role of the master as the person in charge of the activity of navigation qualifies him/her as an *organ* of the flag State. Precisely, one may wonder:

«whether, and to what extent, a shipmaster's conduct in breach of his obligations can also be considered an act of a State, triggering its international responsibility»²⁵⁸.

In this regard, a clear distinction must be done between the navigation carried out by a government-operated ship or by a private vessel. As far as the former is concerned, there is no cloud that master's activities are directly attributable to the flag State²⁵⁹, since his/her manifest qualification as an *organ* of that State. Concerning the latter, instead, the topic approached is much more complex. As noted before, the Law of the Sea sets a due diligence obligation over flag States to ensure that ships flying their flag are in safety conditions. Beyond this duty, therefore, States are not responsible *per se* for the conducts realized by the private ship and its master²⁶⁰. This does not exclude the possibility to attribute master's conducts to a State when he/she is performing a “governmental activity”²⁶¹ or he/she is acting under the instructions, the direction or control of that State²⁶²: in these circumstances, the requirement of the existence of the

²⁵⁸ Ibid, p. 83.

²⁵⁹ To confirm this reasoning, see *South China Sea Arbitration* (The Republic of the Philippines v. the People's Republic of China), Award of 12 July 2016, PCA Case No. 2013-19, para. 703: «the actions of government-operated ships are all attributable to China as such. These actions constitute official acts of China». Again, see ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, Leiden/Boston, 2020, p. 250.

²⁶⁰ As affirmed by ITLOS in the *Request for Advisory Opinion Submitted by the Sub-Regional Fisheries Commission*, Advisory Opinion, 2 April 2015, para. 146: «The liability of the flag State does not arise from a failure of vessels flying its flag to comply with the laws and regulations [...], as the violation of such laws and regulations is not per se attributable to the flag State». This position is also widely supported in scholarship. Among others, see GAVOUNELI M., *Functional Jurisdiction in the Law of the Sea*, Leiden, 2007, p. 34: «The acts and/or omissions of the vessel are not automatically attributable to the State, as the ship remains a private actor and the usual rules of attribution would apply, namely articles 2-11 of the Articles on State Responsibility». Again, see ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 262.

²⁶¹ ILC, *Responsibility of States for Internationally Wrongful Acts*, 2001, art. 5: «The conduct of a person or entity which is not an organ of the State under article 4 but which is empowered by the law of that State to exercise elements of governmental authority shall be considered an act of the State under international law, provided the person or entity is acting in that capacity in the particular instance».

²⁶² ILC, *Responsibility of States for Internationally Wrongful Acts*, 2001, art. 8: «The conduct of a person or group of persons shall be considered an act of a State under international law if the person or

subjective element of an internationally wrongful act is fulfilled²⁶³. These eventualities are particularly analyzed by international lawyers for what concerns the “interrelated” duties of shipmasters and States for rescuing people in distress at sea²⁶⁴.

Furthermore, another issue emerges: from the reading of the mentioned provisions – in particular IMO standards on safety of navigation²⁶⁵ – it seems that some of these rules directly oblige the master as if he/she were the recipient of such duties. This interpretation may contradict the State-centeredness nature and normative structure of the Law of the Sea²⁶⁶.

In the author’s view, the correct interpretation is that the flag States are the recipients of the public international duties analyzed. Even if these norms deal with physical human activities, which are necessarily conducted by individuals and not by international subjects, the adopted normative technique is to conceive them through the lens of the State’s rights and duties²⁶⁷. In any case, it is important to specify that *this conclusion does not exclude the contextual existence of international obligations pending directly upon the masters*²⁶⁸. In particular, with regard to rules on assistance at sea, it is recognized that shipmaster are the direct recipients of certain international duties²⁶⁹. However, since this chapter is limited to dwell on the study of international rules on safety of navigation, the analysis of these norms is not strictly relevant for the prosecution of the proposed analysis.

Conclusively, the reported reflection on the legal status of the master leads to the conclusion that this figure is not only the recipient of specific international rules²⁷⁰;

group of persons is in fact acting on the instructions of, or under the direction or control of, that State in carrying out the conduct».

²⁶³ ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit. p. 262-263.

²⁶⁴ ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 248-281; DE VITTOR F.; STARITA M., *Distributing Responsibilities between Shipmasters and the Different States Involved in SAR Disasters*, cit., 2019. The analysis of international rules on assistance to distressed people at sea is provided by the third chapter of this research.

²⁶⁵ The same conclusion is not valid with regard to the Convention on Civil Liability for Bunker Oil Pollution Damage (CLC), the Convention on Limitation of Liability for Maritime Claims (LLMC) and the Hague Visby Rules, whose belonging to the regime of International Law of the Sea is uncertain. Indeed, they set legal relationships between individuals, and not between States.

²⁶⁶ See section 3(a) of this chapter.

²⁶⁷ See note 68 of this chapter.

²⁶⁸ See MAGI L., *L’obbligo internazionale del comandante di soccorrere i naufraghi e il diritto ad un porto di rifugio*, *Rivista di diritto internazionale*, 2020, p. 691-728; ALLEN C., *Revisiting the Thames Formula*, cit., p. 291.

²⁶⁹ In this regard, see the third chapter of the present research.

²⁷⁰ Ibid.

his/her legal relevance is even related to the flag States' role of ensuring the safety of navigation²⁷¹. From this perspective, the importance of the master is specified by the international rules declining *his/her position of command over the activity of navigation*.

ii) The legal status of the seafarer

Once concluded the legal analysis concerning the person in charge of navigation, the last part of the present section aims at dealing with the international legal status of the “seafarer”.

As previously anticipated, the figure of the “seafarer” has been conventionally defined by the ILO in art. 2(f) of the MLC,:

«seafarer means any person who is employed or engaged or works in any capacity *on board* a ship to which this Convention applies»²⁷².

The drafting of this definition follows the previous ILO conventions dealing with the labour conditions of sea-workers. Just to provide some examples, according to art. 2(b) of the Seamen's Articles of Agreement Convention:

«the term seaman [synonym of “seafarer”] includes every person employed or engaged in any capacity *on board* any vessel and entered on the ship's articles. It *excludes* masters, pilots, cadets and pupils on training ships and duly indentured apprentices, naval ratings, and other persons in the permanent service of a Government»²⁷³.

Similarly, art. I(1)(d) of the Recruitment and Placement of Seafarers Convention, states that:

²⁷¹ BOISSON P., *Safety at Sea*, cit., p. 307: «The traditional law of the sea recognizes his power of decision: he is the sole judge of the action needed for the safety of his ship».

²⁷² MLC, article 2(f) (emphasis added). The MLC Convention remembers also that: «In the event of doubt as to whether any categories of persons are to be regarded as seafarers for the purpose of this Convention, the question shall be determined by the competent authority in each Member after consultation with the shipowners' and seafarers' organizations concerned with this question» (art. 2.3).

²⁷³ (No. 22), article 2(b) (emphasis added).

«the term seafarer means any person who fulfils the conditions to be employed or engaged in any capacity on board a seagoing ship»²⁷⁴.

As far as these definitions are concerned²⁷⁵, it emerges that the concept of “seafarer” comprehends every sea-worker participating in the activity of navigation *on board* the ship, independently of his/her specific mansions. This peculiar condition qualifies their international legal status, reflecting their direct (and physical) involvement in the activity of navigation²⁷⁶. This conclusion is confirmed by the ILO *Resolution concerning information on occupational groups*²⁷⁷. This document explicitly excludes the possibility to define as seafarers the sea workers acting from a remote location (such as, for example, harbor pilots)²⁷⁸. In few words, the qualification of “seafarer” granted by the MLC is necessarily related to the physical presence of an individual on board the ship, regardless of his/her direct involvement in the mereactivity of navigation. Precisely:

«Persons who regularly spend more than short periods aboard, even where they perform tasks that are not normally regarded as maritime tasks, may still be regarded as seafarers for the purpose of this Convention [...]. For example, *repair and maintenance squads and specialist ship staff engaged to work at sea on particular ships may well be regarded as seafarers and entitled to be covered by the rights and obligations provided for in this Convention*»²⁷⁹.

Unlike what is set by the ILO law, IMO conventions on safety on navigation lack in providing specific definitions about this maritime figure. However, they constantly refer

²⁷⁴ Recruitment and Placement of Seafarers Convention, 1996 (No. 179), article I(1)(d).

²⁷⁵ For a more complete analysis on the definitions of “seafarer” or “seaman” provided by ILO, see LIELBARDE S., *Concept Of Seafarer Before And After The Maritime Labour Convention 2016: Comparative analysis of the legal effects of defining legal concepts in the shape of legal terminology*, RGSL Research Paper, 2017.

²⁷⁶ PAPANICOLOPULU I., *Seafarers as an Agent of Change of the Jurisdictional Balance*, in RINGBOM H. (ed.), *Jurisdiction over Ships*, Leiden, 2017, pp. 304-305: «For the rest, the definition of “seafarer” in the MLC is intentionally broad so as to include different categories of persons working on board vessels under different contractual arrangements and performing different tasks».

²⁷⁷ ILO, *Resolution concerning information on occupational groups*, Adopted by International Labour Conference at its 94th Maritime Session, February 2006.

²⁷⁸ ILO, *Resolution concerning information on occupational groups*, cit., annex: «There are persons who principally work onshore, but who occasionally spend a short period working on a ship. These may not be seafarers. There are persons who regularly spend a short period on a ship. These may be seafarers. In both cases, their work may or may not be directly concerned with the routine business of the ship. *Persons who might not be determined to be seafarers include harbour pilots and portworkers*, as well as certain specialist staff such as guest entertainers, ship inspectors, superintendents and repair technicians» (emphasis added).

²⁷⁹ ILO, *Resolution concerning information on occupational groups*, cit., annex.

to this term. More importantly, it seems that they attribute the same meaning to the word “seafarer” established by the mentioned ILO conventions, in particular by art. 2(f) of the MLC. Precisely, it is here sustained that even IMO conventions consider as “seafarer” every human actor involved in navigation *working on board the ship*.

To confirm this conclusion, this author refers to the text of art. III of STCW, which determines the scope of application of the international treaty. As noted before, the STCW limitedly regulates the training and formation of:

«seafarers serving *on board* sea-going ships entitled to fly the flag of a party [...]»²⁸⁰.

From the reading of this provision, it derives that the regulation of training and formation of sea-workers limitedly concerns people on board the ship, delimiting the regulatory interest to the figure of “seafarers on board”.

As a further confirmation of this, even other IMO rules seem to be inspired by the above-mentioned definition of “seafarer”. Beyond the STCW Convention, indeed, even COLREGs follows this pattern. Just to provide an example, rule 2 of COLREGs, establishing the general duty of “good *seamanship*”, seems to be intrinsically founded on the traditional idea of human actors on board the ship.

Conclusively, according to what already exposed, when using the term “seafarer”, the international rules on safety of navigation intend every person involved in the activity of navigation *working on board the ship*²⁸¹. This position is not only supported by the reading of the ILO conventional definitions, but also by observing IMO standards on safety of navigation. Allegedly, these rules are thought to deal with the *protection of the human presence on board*. As previously pointed out, navigation is a highly dangerous activity, characterized by the peculiar human condition of being at sea for a prolonged period time²⁸². As it is known, waters are a risky environment for

²⁸⁰ STCW Convention, article III (emphasis added).

²⁸¹ This conclusion is also confirmed by the reading of U.S. domestic law. See *Chandris, Inc. v. Latsis*, American Supreme Court, 1995, p. 126: «The essential requirements for seaman status are twofold. First [...] an employee’s duties must contribute to the function of the vessel or to the accomplishment of its mission. [...] Second [...] a seaman must have a connection to a vessel in navigation (or to an identifiable group of such vessels) that is substantial in terms of both its duration and its nature».

²⁸² PAPANICOLOPULU I., *Seafarers as an Agent of Change of the Jurisdictional Balance*, cit., pp. 310-311.

human life. Following this, international rules on safety of navigation are precisely modelled to protect *people navigating at sea, namely the seafarers*.

5. The applicability of international rules on human involvement in navigation to the use of MASS

According to what has been observed until now, the international legal framework on safety of navigation is precisely modelled on the ergonomics of navigation. Therefore, when technological progress innovates the factual modalities for performing navigation, the existing international rules and standards risk not being completely effective anymore²⁸³. Since they regulate a *human activity constantly in change*²⁸⁴, one of the main characteristics of these norms is their need for frequent renewal.

As it has been already anticipated, in the last few years the first MASS have been tested and produced²⁸⁵. The growing use of automation in the maritime field seriously challenges *the way of conceiving the human activity of navigation*. Therefore, the international legal system regulating navigation is challenged by the use of MASS too; since the human involvement in the conduction of the activity is subject to change, even the international rules on safety of navigation are called to face this technological revolution.

The fifth section of the present chapter will deal with the presented issue. Precisely, it will address whether and how the existing international rules on the subjective element of navigation apply to the use of MASS.

The origins of the proposed topic lie in the fact that the observed IMO provisions were drafted years ago, when States could not have been fully aware of the rise of digitalization and automation in the field of maritime transport²⁸⁶. More technically, this topic falls into a general question of International Law, namely the relevance of the *temporal factor in interpreting written rules*²⁸⁷. For this reason, the first pages of this section will provide some general remarks in this regard.

²⁸³ KARLIS T., *Maritime Law Issues Related to the Operation of Unmanned Autonomous Cargo Ships*, cit., p. 126.

²⁸⁴ See section 2(b) of this chapter.

²⁸⁵ See section 2 of the introduction to this thesis.

²⁸⁶ SMITH B., *New Technologies and Old Treaties*, AJIL Unbound 114, 2020, p. 152-157.

²⁸⁷ It is important to remark here that the proposed analysis mainly deals with the process of interpretation of treaty rules, without going into the question of their eventual inclusion into customary law. However, being conscious of the delicate and evolving equilibrium between custom and treaty law in the regime of International Law of the Sea (see TREVES T., *Codification du droit international et pratique des Etats dans le droit de la mer*, cit.), the reference to “written rules” looks more adequate rather than

Subsequently, this research will dwell on the interpretative analysis of the international rules and standards on safety of navigation for what concerns the use of MASS. This part will follow the same structure adopted in section 4 of this chapter. Precisely, it will consist of four subsections, respectively dealing with each of the sub-sets making-up the legal framework under analysis, namely *quantity* (section 5(b)), *quality* (section 5(c)), *activity* (section 5(d)) and the *legal status* of the human actors involved in navigation (section 5(e)).

In so doing, the next pages will constantly take into account the huge distinctions occurring between MASS belonging to different classes of automation. As it has been noted before²⁸⁸, indeed, the concept of automation declines itself in many shapes and forms; these ergonomic peculiarities reflect varying degrees of interpretative complexity.

Before starting the analysis, it is important to further specify that the topic approached is still an ongoing debate. Although States and international organizations have already started addressing this issue, they did not have fixed yet the next steps to carry out. As anticipated, a few months ago the MSC has concluded the RSE on the use of MASS. This preliminary work has just confirmed the existence of «many common potential gaps»²⁸⁹, without providing shared solutions to these open questions.

For this reason, although the next pages will report the States' declarations about the addressed topic, the analysis of this ongoing debate cannot exhaust the present research; since their preliminary nature, indeed, such declarations are far from being considered as *means of authentic interpretations* of the IMO treaty rules under study²⁹⁰: in the author's view, they *limitedly assist* international lawyers in the delicate process of reconstruction of the original intention of the State parties²⁹¹.

“treaty rules”. This semantic approach is supported by CREMA L., *La prassi successiva e l'interpretazione del diritto internazionale scritto*, Milano, 2017, p. 3-4.

²⁸⁸ See section 3 of the introductions to the thesis.

²⁸⁹ IMO RSE, p. 8.

²⁹⁰ Report of the International Law Commission, Seventieth Session, 2018, UN Doc. A/73/10, Conclusion 3.

²⁹¹ Report of the International Law Commission, Seventieth Session, 2018, UN Doc. A/73/10, Conclusion 8, p. 64. For a general overview on the means of authentic interpretation of treaties, see CREMA L., *La prassi successiva e l'interpretazione del diritto internazionale scritto*, cit.; COSTELLOE D; FITZMAURICE M., *Interpretation of Secondary Instruments in International Law*, XXXV Polish Yearbook of International Law, 2015; NOLTE G. (ed.), *Treaties and Subsequent Practice*, Oxford, 2013.

a)

General remarks on the temporal factor in interpreting conventional rules

As prof. Palchetti observed:

«It is a truism that international treaties, as any sets of rules, are subject to erosion with the passing of time»²⁹².

From the very moment when a convention was signed, the factual and legal circumstances acknowledged by the parties might change over time, so that it follows the question of how treaty rules established in the past operate in the present.

Albeit dealing with some time-related matters²⁹³, the final version of the Vienna Convention on the Law of Treaties (VCLT) does not specifically address the issue concerning the temporal factor in interpreting treaty rules²⁹⁴. Due to this deliberate silence²⁹⁵, whenever the passing of time causes a question of *inter-temporal law*²⁹⁶, two opposite solutions look theoretically feasible. First, following a *static approach*, the treaty is to be interpreted in full compliance with the original circumstances characterizing its conclusion and its entry into force²⁹⁷. Otherwise, the same treaty may

²⁹² PALCHETTI P., *Interpreting 'Generic Terms': Between Respect for the Parties' Original Intention and the Identification of the Ordinary Meaning*, in BOSCHIERO N. et al. (eds.), *International Courts and the Development of International Law*, The Hague, 2013, p. 91.

²⁹³ Vienna Convention on the Law of Treaties (VCLT), 1969 (entry into force in 1980). To date, 116 States signed the Convention, which has codified many aspects of customary law on treaties. With regard to time and treaties, the VCLT deals with the issues of retroactivity of treaties (art. 28), the relationship of successive treaties with the same subject matter (art. 30), the provisional application of treaties (art. 18), and the change of the circumstances after the conclusion of the treaty (art. 62).

²⁹⁴ It has to be highlighted that Special Rapporteur WALDOCK, in ILC, Third Report on the law of treaties, 1964, A/CN.4/167, included a provision on this point, article 56, which stated: «A treaty is to be interpreted in the light of the law in force at the time when the treaty was drawn up [...]». However, this article was not included in the final draft of the Convention.

²⁹⁵ NOVÝ Z., *Evolutionary Interpretation of International Treaties*, in BĚLOHLAVEK A.; ROZEHNALOVA N. (ed.), *Czech Yearbook of International Law*, Volume VIII, The Netherlands, 2017, p. 219; MERKOURIS P., *(Inter) Temporal Consideration in the interpretative Process of the VCLT: Do Treaties Endure, Perdure or Edure?*, in AMBRUS M.; WESSEL R. (ed.) *Netherlands Yearbook of International Law Between Pragmatism and Predictability: temporariness in International Law*, The Hague, 2014; DUPUY P., *Evolutionary Interpretation of Treaties: Between Memory and Prophecy*, in CANNIZZARO E. (ed.), *The Law of Treaties Beyond the Vienna Convention*, New York, 2011, p. 123-137.

²⁹⁶ FITZMAURICE M., *Dynamic (evolutive) interpretation of treaties*, Part I, *Recueil des Cours* 21, 2008, p. 101-153; KOTZUR M., *Intertemporal law*, *Max Planck Encyclopedia of Public International Law*, 2008; ELIAS T.O., *The doctrine of intertemporal law*, *American Journal of International Law*, 1980.

²⁹⁷ Just to provide some cases in which an international judicial body adopted a static position, see: *Islands of Palmas Case* (Netherlands v. USA), 4 April 1928, RIAA Volume II, et. 845: «[b]oth Parties are also agreed that a juridical fact must be appreciated in the light of the law contemporary with it, and not of the law in force at the time when a dispute in regard to it arises or falls to be settled»; *Case concerning Rights of Nationals of the United States of America in Morocco* (France v. United States of America)

be observed in the light of the moment in which it upholds its legal effects: this alternative approach is called *dynamic* or *evolutionary* because it attributes a meaning that could be different and innovative in respect of the original one²⁹⁸.

In the author's view, when dealing with this interpretative dilemma, the decision to opt for one or the other approach shall be based on the reconstruction of the *original will of the parties* – the source of the normative value of international treaties²⁹⁹ – in order to understand if they wished to permit the conventional legal system to evolve over time³⁰⁰. This approach is supported by International Court of Justice (ICJ) jurisprudence³⁰¹ and by the recent works of the International Law Commission (ILC)³⁰². Precisely:

«The question whether the terms used were intended to have a fixed content or to change in meaning with the evolution of the law could be decided only by interpreting the intention of the parties»³⁰³.

The *ex post* reconstruction of the original will of State parties is a complex and uncertain process, which needs to be conducted in full compliance with the general rules of interpretation codified by arts. 31-33 of the VLCT. This is because the interpretation «in good faith in accordance with the ordinary meaning to be given to the terms [...] in

Judgment of August 27th, 1952: I.C.J. Reports, 1952, et. 189; *Case concerning Kasikili/Sedudu Island* (Botswana/Namibia), Judgment, I.C.J. Reports, 1999, et. 1045.

²⁹⁸ The International Court of Justice (ICJ) adopted this approach in *Legal Consequences for States of the Continued Presence of South Africa in Namibia* (South West Africa) notwithstanding Security Council Resolution 276, I.C.J. Reports 1970 (Advisory Opinion); *Aegean Sea Continental Shelf Case* (Greece v. Turkey), Judgment, I.C.J. Reports 1978, et. 33, paragraph 78, and *Dispute regarding Navigational and Related Rights* (Costa Rica v. Nicaragua) I.C.J. Reports 2009, et. 213, paragraphs 57- 71.

²⁹⁹ International Court of Justice Statute, article 38,1(a). In this regard, it must be reported the authoritative thought of ANZILLOTTI D., *Corso di diritto internazionale*, Padova, 1955, p. 106: «il diritto internazionale ripugna a qualsiasi estensione degli obblighi assunti, oltre i casi contemplati».

³⁰⁰ See BJORGE E., *The Evolutionary Interpretation of Treaties*, Oxford, 2014.

³⁰¹ *Dispute regarding Navigational and Related Rights*, cit., paragraph 63: «It is true that the terms used in a treaty must be interpreted in light of what is determined to have been the parties' common intention, which is, by definition, contemporaneous with the treaty's conclusion. That may lead a court seized of a dispute, or the parties themselves, when they seek to determine the meaning of a treaty for purposes of good-faith compliance with it, to ascertain the meaning a term had when the treaty was drafted, since doing so can shed light on the parties' common intention».

³⁰² Report of the International Law Commission, Seventieth Session, 2018, UN Doc. A/73/10, Conclusion 8, p. 64. For a brief analysis of ILC works, see STARITA M., *Formalismo e antiformalismo nell'interpretazione dei trattati nei recenti lavori della Commissione del diritto internazionale*, Rivista di Diritto Internazionale, 2019, p. 1071-1088.

³⁰³ WALDCKOCK H., in Yearbook of the International Law Commission, 1966, Volume I, Part II, p. 199.

their context and in the light of its object and purpose»³⁰⁴ is considered by International Law as:

«[...] *the most suitable and straightforward evidence of that agreement*»³⁰⁵.

From this perspective, the first fundamental step is to observe the words composing the provision object of analysis. Accordingly, the interpretation of the ordinary meaning of the terms helps in clarifying what level of dynamicity has been desired by the parties at the moment of the formation of that norm.

In this respect, the presence of *generic terms* may be read as an overture to dynamic and evolutive interpretations of the written provisions. In this sense, the ICJ, when solving a dispute about the interpretation of the conventional term “*comercio*” between Costa Rica and Nicaragua, stated that:

«where the parties have used generic terms in a treaty, the parties necessarily having been aware that the meaning of the terms was likely to evolve over time, and where the treaty has been entered into for a very long period or is ‘of continuing duration’, the parties must be presumed, as a general rule, to have intended those terms to have an *evolving meaning*»³⁰⁶.

A contrario, specific provisions cannot be easily interpreted evolutionary because, unless proven otherwise, it is not reasonable to presume that the original will of the drafters was to permit the legal system to follow the passing of time³⁰⁷.

The adoption of generic or specific terms is not the sole criterion to take into account when dealing with issues of inter-temporal law. In this respect, even the analysis of the *object and purpose of the international convention* plays a fundamental

³⁰⁴ VCLT, article 31,1.

³⁰⁵ ORAKHESHAVILI A., *The Interpretation of Acts and Rules in Public International Law*, Oxford, 2008 (emphasis added). More in general, this position is authoritatively supported by LAUTERPACHT H., *Codification and Development of International Law*, American Journal of International Law, 1955, p. 27: «The function of interpretation of treaties [consists of] ascertaining what was the intention of the parties».

³⁰⁶ *Dispute regarding Navigational and Related Rights*, cit., para. 66 (emphasis added). This position is coherent with previous decisions adopted by the ICJ. For example, see *Aegean Sea Continental Shelf Case*, cit., para 78.

³⁰⁷ *Constitution of the Maritime Safety Committee of the Inter-Governmental Maritime Consultative Organization*, Advisory Opinion, I.C.J. Reports 1960, p. 158: «The word obtains its meaning from the context in which it is used. If the context requires a meaning which connotes a wide choice, it must be construed accordingly, just as it must be given a restrictive meaning if the context in which it is used so requires».

role in the process of reconstruction of the original intention of the parties. For example, it is quite pacific that the more a convention claims to be “*constitutional*”, the more it can be interpreted extensively, adapting itself to the evolutions brought by the passing of time: these treaties are usually defined as “*living instruments*”. For example, according to the European Court of Human Rights’ jurisprudence (ECtHR), the European Convention for the Protection of Human Rights (ECHR)³⁰⁸ is a:

«living instrument which must be interpreted in the light of present-day conditions»³⁰⁹.

This dynamic interpretation is intrinsically related to the *constitutional nature of the ECHR*³¹⁰, which allows to interpret its rules following an evolutionary approach. Indeed, since «every constitution aspires to eternity»³¹¹ and completeness,

«the mere fact that a body was not envisaged by the drafters of the Convention cannot prevent that body from falling within the scope of the Convention»³¹².

Similar reasoning may be carried out for what concerns the admissibility of an evolutive interpretation of UNCLOS provisions³¹³. In fact, its pretense of universal regulation over the Law of the Sea regime³¹⁴ may be read as a demonstration of the original intention of the international community to bring to life a dynamic legal

³⁰⁸ The European Convention of Human Rights (ECHR) was signed the 4th of November 1950 and entered into force the 3rd of September 1953. To date, 47 States are parties to the convention.

³⁰⁹ ECtHR, *Loizidou v. Turkey*, judgment of 23 March 1995 (preliminary objections), Series A no. 310, pp. 26-27, para 71. This position is confirmed by other judicial decisions: *Hassan v. United Kingdom*, judgement of 16 September 2014, (Application no. 29750/09); *Matthews v. United Kingdom*, judgement of 18 of February 1999, paragraph 39. (Appl. no. 24833/94); *Tyrer v. United Kingdom*, judgment of 25 April 1978, Series A no. 26, pp. 15-16.

³¹⁰ RANDAZZO B., *Giustizia costituzionale e sovranazionale*, Milano, 2012, p. 4: «Gli sviluppi interni al sistema del Consiglio d’Europa hanno finito con l’attrarre [...] la Convenzione europea dei diritti dell’uomo e la Corte europea dei diritti nel solco del costituzionalismo moderno, facendone di recente un oggetto privilegiato di riflessione da parte degli studiosi del diritto e della giustizia costituzionale e non solo, come è stato per lungo tempo, dei cultori del diritto internazionale».

³¹¹ FASSBENDER B., *The United Nations Charter as a Constitution of the International Community*, Columbia Journal of International Law, 1998, p. 578.

³¹² ECtHR Judgment, *Matthews v. the United Kingdom*, cit., para 38 (emphasis added).

³¹³ For what concerns the issue concerning the recourse to the interpretative criteria codified in arts. 31-33 of the VCLT for interpreting the UNCLOS, see VIRZO R., *The ‘General Rule of Interpretation’ in the International Jurisprudence Relating to the United Nations Convention on the Law of the Sea*, in DEL VECCHIO A.; VIRZO R. (eds.), *Interpretations of the United Nations Convention on the Law of the Sea by International Courts and Tribunals*, Cham, 2019, p. 15-38.

³¹⁴ To more in this regard, see section 3(b) of this chapter.

framework³¹⁵. From this perspective, in its separate opinion on the ITLOS advisory opinion of 2015³¹⁶, Judge Lucky affirmed that:

«The 1982 Convention and the Statute of the Tribunal are “living instruments”. This means that they “grow” and adapt to changing circumstances. [...] The law of the sea is not static. It is dynamic and, therefore, through interpretation and construction of the relevant articles a court or tribunal can adhere and give positive effect to this dynamism»³¹⁷.

Continuing with the present analysis, the research of the original intention of State parties may need to take into account even the *subsequent agreements and subsequent practice in the application of the treaty*³¹⁸. Intuitively, starting from the analysis of States’ conducts and declarations that occurred *after* the entry into force of a treaty, it seems possible to depict the Parties’ original intention about the dynamic/static nature to give to treaty provisions³¹⁹. As already noted, the relevance of the subsequent agreements and subsequent practice in this respect has been recently dwelled by the ILC, pursuant to which these criteria:

«may assist in determining whether or not the presumed intention of the parties upon the conclusion of the treaty was to give a term used a meaning which is capable of evolving over time»³²⁰.

³¹⁵ This topic is in-depth analyzed by DEL VECCHIO A.; VIRZO R. (eds.), *Interpretations of the United Nations Convention on the Law of the Sea by International Courts and Tribunals*, New York, 2019; PETRIG A., *The Commission of Maritime Crimes with Unmanned Systems: An Interpretative Challenge for UNCLOS*, cit.; BARNES R., *The Continuing Vitality of UNCLOS*, in BARRETT J.; BARNES R., (eds), *The United Nations Convention on the Law of the Sea: A Living Instrument*, London, 2016, p. 459-489; ELFERINK A. (ed.), *Stability and Change in the Law of the Sea: the Role of the LOS Convention*, cit.; SCOVAZZI T., *The Assumption that the United Nations Convention on the Law of the Sea is the Legal Framework for All Activities Taking Place in the Sea*, cit.; SCOVAZZI T., *Is the UN Convention on the Law of the Sea the Legal Framework for All Activities in the Sea? The case of Bioprospecting*, in VIDAS D. (ed.), *Law, Technology and Science for Oceans in Globalisation*, cit.; BOYLE A., *Further Development of the 1982 Convention on the Law of the Sea: Mechanisms for Change*, in FREESTONE D.; BARNES R.; ONG D. (eds.), *The Law of the Sea. Progress and Prospects*, New York, 2006, p. 40-62.

³¹⁶ ITLOS, Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission, Advisory Opinion, 2 April 2015, ITLOS Reports 2015, p. 4.

³¹⁷ ITLOS, Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission, Advisory Opinion, cit., separate opinion of Judge Lucky.

³¹⁸ VCLT, article 31,3 (a) and (b). For a general analysis on this matter, see CREMA L., *La prassi successiva e l’interpretazione del diritto internazionale scritto*, cit.

³¹⁹ Report of the International Law Commission, Seventieth Session, 2018, UN Doc. A/73/10, para (27).

³²⁰ Report of the International Law Commission, Seventieth Session, 2018, UN Doc. A/73/10, Conclusion 8, p. 64.

Conclusively, in the event that the interpretative operations inspired by art. 31 of VCLT leads to uncertain and/or absurd results, art. 32 allows resorting to *supplementary means of interpretation*, namely the preparatory works of the treaty and the circumstances of its conclusion³²¹. In such cases, International Law invites international lawyers to analyze States' behaviours that took place *before* and *during* the drafting of the provision, in order to reconstruct the original will of the parties through a historical reasoning. Theoretically, this operation is just residual and subordinate to the ordinary interpretative route enshrined in art. 31 of VCLT. In practice, however, the recourse to supplementary means of interpretation by international courts is far from being rare and occasional: notoriously, judicial decisions are often replete with references to preparatory works of the international written rules analyzed³²².

b) Interpretative analysis of international rules on the manning of ships with regard to the use of MASS

As it has been in-depth analyzed before³²³, for what concerns the *quantity* of human actors involved in the activity of navigation, the Law of the Sea generally requires flag States to ensure that ships flying their flag “shall be sufficiently and efficiently manned”³²⁴. In this respect, IMO law does not fix a specific number of sea-workers able to guarantee safe navigation; furthermore, it does not even specify the meaning to give to the term “manning”. On the contrary, it limitedly sets a generic duty, according to which the concrete decisions about the quantity level of sea-workers involved in navigation shall be taken by the respective flag State on the basis of safety grounds.

³²¹ VCLT, art. 32.

³²² For detailed analysis on this matter, see GARDINER R., *Treaty Interpretation*, Oxford, 2015, p. 347-409; RIS M., *Treaty Interpretation and ICJ Recourse to Travaux Préparatoires: Towards a Proposed Amendment of Articles 31 and 32 of the Vienna Convention on the Law of Treaties*, Boston College International and Comparative Law Review, 1991, p. 111-136.

³²³ See section 4(a) of this chapter.

³²⁴ SOLAS Convention, reg. V/14,1.

Intuitively, the applicability of this rule to the use of MASS stimulates many legal concerns³²⁵, whose complexity strongly differs depending on which degree of automation is considered.

For what concerns the ships falling into the first two MASS automation classes³²⁶, it seems that their use theoretically complies with the general requirement provided by reg. V/14,1 of SOLAS. In fact, although these new ships need fewer personnel for conducting navigation rather than the traditional ones, *they still require the presence of sea-workers on board the ship*. The mere reduction in quantity levels of the human actors involved in navigation is not *per se* an innovative situation. As observed before, indeed, the SOLAS does not specifically establish a fix number of on board personnel. Accordingly, an optimum safe manning level depends on many factors, among which *the technology achieved* stands for relevance³²⁷. Therefore, it is quite pacific that the use of MASS belonging to the first two automation levels falls within the scope of application of the existing international rules on the manning of ships³²⁸. In this circumstance, the (limited) recourse to automation technology does not configure a misalignment from the traditional idea of ship manning; it simply determines a physiological reduction in terms of the quantity of sea-workers involved.

While the use of MASS belonging to the first and the second levels of automation does not give rise to relevant legal implications, the same cannot be said for what concerns *fully remotely controlled* MASS³²⁹. Accordingly, their highly innovative nature stimulates the paradoxical dilemma of whether the use of “*unmanned*” maritime vehicles complies with the international duty in charge of the flag State to ensure that their national ships shall be “sufficiently and efficiently *manned*”.

The proposed legal question has an interpretative nature, whose its origins lie in the undefined recourse to the term “manning”, whose meaning is far from being univocal. After the revolution brought by automation technologies, the legal requirement of “manning the ship” can be theoretically intended, at least, in two different ways. First, it

³²⁵ YOO J.; GOERLANDT F.; CHIRCOP A., *Unmanned Remotely Operated Search and Rescue Ships in the Canadian Arctic: Exploring the Opportunities, Risk Dimensions and Governance Implications*, cit., p. 92.

³²⁶ See the section 3 of the introduction to the chapter.

³²⁷ See section 4(a) of this chapter.

³²⁸ Among others, see NAWROTP J.; PEŁOWSKA-DĄBROWSKA Z., *Revolution or Evolution? Challenges Posed by Autonomous Vessels for the National and International Legal Framework*, cit., p. 249.

³²⁹ MASS of third and fourth level.

may be understood as “*attending the ship*”, in the sense that the ship must necessarily host personnel on board; otherwise, it may be interpreted in the sense that the ship must be controlled by a sufficient number of human actors *independently of their physical location*³³⁰.

In this regard, it is here sustained that this topic deals with the *inter-temporal dynamicity of the international rule object of analysis*³³¹; indeed, although it is indisputable that the word “manned” has been originally intended by State parties of SOLAS as a ship *attended* by human actors *on board*, what it is not clear is whether reg. V/14,1 of SOLAS may *now* be interpreted innovatively, and so even including the drastic revolution brought by MASS in the establishment of the safe quantity of sea- workers.

Currently, this interpretative dilemma is highly debated by States and international organizations. For what concerns the IMO, the Organization seems to support an evolutionary approach³³². Indeed, the above-mentioned *Interim guidelines*, when dealing with the principle of safe manning with regard to MASS trials, affirm that:

«Any personnel involved in MASS trials, *whether remote or onboard*, should be appropriately qualified and experienced to safely conduct MASS trials»³³³.

The explicit reference to remote operators in this statement highlights the broad and dynamic interpretation given to the concept of manning, which may theoretically include even the personnel working from shore³³⁴.

Contrarily to this interpretation, some States that have participated in a survey organized by the Comité Maritime International (CMI)³³⁵ retain that the term “manned” shall be interpreted statically. Just to provide few examples, Italy affirmed that:

³³⁰ RINGBOM H., *Regulating Autonomous*, cit. p. 157. Again, VEAL R.; TSIMPLIS M.; SERDY A.; NTOVAS A.; QUINN S., *Liability for operations in Unmanned Maritime Vehicles with Differing Levels of Autonomy*, 2016, cit., p. 16.

³³¹ See section 5(a) of this chapter.

³³² With regard to legal relevance of IMO positions concerning the interpretation of its treaties and conventions, see COSTELLOE D; FITZMAURICE M., *Interpretation of Secondary Instruments in International Law*, XXXV Polish Yearbook of International Law, 2015, p. 63-67.

³³³ MSC.1/Circ.1604, Interim Guidelines for MASS Trials, 14 June 2019, 2.3.3.

³³⁴ On the same view, see RINGBOM H.; COLLIN F., *Terminology and Concepts*, in RINGBOM H.; RØSÆG E.; SOLVANG T., (eds.), *Autonomous Ships and the Law*, cit., p. 8: «Manning refers to the availability of competent persons to operate the ship, on board or elsewhere».

³³⁵ The responses of States to the questionnaire organized by the CMI are available at <https://comitemaritime.org/work/mass/>. For a detailed summary of the questionnaire see the IMO document MSC/99/INF. 8, Regulatory Scoping Exercise for the use of Maritime Autonomous Surface

«it seems hard to affirm that the relevant authority has the discretion to allow unmanned operation if satisfied as to its safety, in the light of the requirement related to safe manning»³³⁶.

Similarly, Argentina declared that:

«unmanned vessels have not been taken into account and to this date it seems that the authority does not have the discretion to allow unmanned operations»³³⁷.

In the author's view, and coherently to what was argued before³³⁸, the solution to this interpretative issue must be raised through the reconstruction of the original will of State parties, a process that needs to be conducted in full compliance with what is codified by arts. 31-33 of the VLCT; the remaining part of the present section aims at fulfilling this task.

From a first sight, adopting a literal interpretation³³⁹ of the treaty terms under analysis, the word “manned” has precisely the opposite meaning of “unmanned”³⁴⁰. In particular, the recourse to this adjective related to the term “ship” could be intended as a demonstration of the original intention of the parties not to legitimize fully unmanned navigation even in the future. From this side, it might seem excessively forced to recognize to a word such a dynamic evolution to even include its semantic opposite³⁴¹.

At the same time, however, the term “manned” undoubtedly has a *generic nature*; according to ICJ jurisprudence³⁴², the decision of State parties to avail of generic words

Ships (MASS), Work conducted by the CMI International Working Group on Unmanned ships, 13 February 2018.

³³⁶ Italian Responses to the CMI questionnaire on Unmanned Ships, available at <https://comitemaritime.org/wp-content/uploads/2018/05/CMI-IWG-Questionnaire-Unmanned-Ships-ITALY.pdf>.

³³⁷ Argentine Maritime Law Association response to the CMI questionnaire on unmanned ships, available at <https://comitemaritime.org/wp-content/uploads/2018/05/CMI-IWG-Questionnaire-Unmanned-Ships-ARGENTINA.pdf>.

³³⁸ See section 5(a) of this chapter.

³³⁹ VLCT, art. 31,1.

³⁴⁰ COITO J., *Maritime Autonomous Surface Ships. New Possibilities – and Challenges – in Ocean Law and Policy*, cit., p. 304.

³⁴¹ As effectively said by Jessup: «Words lose their utility as soon as they fail to convey meaning» (JESSUP P., *The Law of Territorial Waters and Maritime Jurisdiction*, New York, 1927 (reprinted 1970), p. xxxii).

³⁴² See note 306 of this chapter.

(without providing a conventional definition)³⁴³ could be intended as a deliberate overture to dynamic and evolutive interpretations. In this specific occurrence, it must be highlighted that, if the States parties wanted to further specify the meaning to give to “manned”³⁴⁴, they could have added “on board” to the provision object of analysis.

The achievement of uncertain results leads the author to enrich the interpretative analysis by observing reg. V/14,1 of SOLAS in the light of the object and purpose of the treaty. From this perspective, the principal goal of the SOLAS is to:

«specify minimum standards for the construction, equipment and operation of ships, compatible with their safety»³⁴⁵.

In order to ensure safety of navigation, the Convention typically sets highly specific, precise and technical standards. Consequently, for their very nature, SOLAS rules are generally quite *static*³⁴⁶; allegedly, this is thought to reduce the rise of interpretative issues, which may undermine their uniform enforcement by the flagStates.

However, when dealing with the manning of ships, the adopted normative technique appears to be different; as noted before³⁴⁷, reg. V/14,1 imposes on the flag States a *generic* obligation, leaving them free to choose the concrete modalities for achieving the intended goal. From this perspective, it could be argued that the particular and exceptional nature of this regulation highlights, even more, the *original intention of the parties to leave it as much as possible elastic and flexible*. Following this reasoning, it could be advanced that the interpretative reconstruction of the meaning of the term “manned” could follow an evolutionary approach.

According to what has been already observed, it is the author’s conclusion that the conventional term “manned” provided in reg. V/14,1 of SOLAS has a dynamic nature,

³⁴³ In this respect, it has to be highlighted that the strategy of defining fundamental and generic terms is frequently adopted in IMO treaty law. For example, the SOLAS itself sets fifteen definitions of fundamental terms in its reg. I/2. Interestingly, no definition is given to the word “manned” or “manning” by the treaty here analyzed.

³⁴⁴ On other occasions, IMO rules and standards specify the “on board requirement”. Just to provide an example, article III of STCW explicitly delimits its scope of application to «seafarers on board».

³⁴⁵ *Implications of the United Nations Convention on the Law of the Sea for the International Maritime Organization*, Document I:\LEG\MISC\7.doc, January 19, 2012, p. 20.

³⁴⁶ ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 51.

³⁴⁷ See section 4(a) of this chapter.

which permits its evolution over time. Therefore, among the various meanings it may potentially assume, a “manned” ship can now be intended as a vessel controlled by the subjective element of navigation, *independently of his/her physical location*³⁴⁸; therefore, the use of unmanned MASS, if sufficiently and efficiently controlled by remote operators, potentially comply with the principle of safe manning³⁴⁹.

In any case, it must be noted that, even adopting a static approach, such an alternative interpretation would not exclude *per se* the legality of MASS belonging to the third and fourth levels of automation. For sake of completeness, it is here intended to briefly report two other alternative solutions that reach the same conclusion following different interpretative paths.

The first one speculates on the fact that the SOLAS does not provide a minimum number of people on board: it simply requires a sufficient and efficient level of manning to guarantee safe navigation³⁵⁰. Potentially, in the case of unmanned MASS, even adopting a static interpretation of the word “manned”, one could argue that the efficient and sufficient safe level of manning required is *zero*³⁵¹. In compliance with interpretation, therefore, even fully remotely controlled ships would theoretically comply with SOLAS requirements.

Then, the second alternative solution pays particular attention to the SOLAS reg. I/5, the so-called “*equivalence rule*”. This provision states that:

«Where the present Regulations require that a particular fitting, material, appliance or apparatus, or type thereof, shall be fitted or carried in a ship, or that any particular provision shall be made, the Administration may allow any other fitting, material, appliance or apparatus, or type thereof, to be fitted or carried, or any other provision to be made in that ship, if it is satisfied by trial thereof or otherwise that such fitting,

³⁴⁸ RINGBOM H., *Regulating Autonomous*, cit., p. 157. Again, VEAL R.; TSIMPLIS M.; SERDY A.; NTOVAS A.; QUINN S., *Liability for operations in Unmanned Maritime Vehicles with Differing Levels of Autonomy*, 2016, cit., p. 16.

³⁴⁹ The same position has been expressed by the European Maritime Safety Agency (EMSA), *Study of the risks and regulatory issues of specific cases of MASS* (part 1), 2020, doc. no. 2019-1296, p. 77.

³⁵⁰ See IMO Resolution A.1047(27), Principles of Minimum Safe Manning, adopted on 30 November 2011 (Agenda item 9).

³⁵¹ On this view, see MCKENZIE S., *When is a Ship a Ship? Use by State Armed Forces of Uncrewed Maritime Vehicles and the United Nations Convention on the Law Of The Sea*, Melbourne Journal of International Law, 2021, p. 16; LI RUI, *On the Legal Status of Unmanned Ships*, cit., p. 175; RINGBOM H., *Legalizing Autonomous Ships*, cit., p. 438; PRITCHETT, P. W., *Ghost ships: Why the law should embrace unmanned vessel technology*, cit., p. 203.

material, appliance or apparatus, or type thereof, or provision, *is at least as effective as that required by the present Regulations*»³⁵².

As pointed out by some States³⁵³ and scholars³⁵⁴, thanks to the application of the general reg. I/5, the interpretation of SOLAS provisions might be elastic enough to overwhelm the specific delimitations deriving from a literal interpretation of the treaty. Following this reasoning, where MASS belonging to the last two degrees of automation *ensure at least the same level of safety provided by manned ships*, their use would not be in breach of SOLAS.

In the author's view, instead, this last reported solution is not particularly persuasive: the reported approach seems to be based more on an abuse of the equivalence rule rather than a correct use of it. As it has been already told, the SOLAS Convention mainly provides technical standards in order to ensure safety of navigation. Since its provisions are usually highly specific, reg. I/5 cannot be intended as a normative instrument capable of overriding the scope of SOLAS rules. On the contrary, it is merely finalized to concede *a limited* – physiological – flexibility to the legal system provided by SOLAS, which, otherwise, would be super-technical and could cause serious difficulties for flag States to uniformly enforce its provisions. Insofar, its

³⁵² SOLAS regulation I/5 (emphasis added). The presented position is supported by many States. (see Final Report Analysis of Regulatory Barriers to the use of Autonomous Ships (Denmark), 18 January 2018; IMO, MSC 99/5/9).

³⁵³ Final Report Analysis of Regulatory Barriers to the use of Autonomous Ships (Denmark), 18 January 2018, p. 59: «Here, the overall principle of SOLAS chapter I, regulation 5, on equivalence will presumably be decisive (see section 4.7.1 below). Thus, ships at autonomy levels RU and A will have to demonstrate their ability to offer at least the same safety level when unmanned as that of manned ships to be in compliance with SOLAS chapter V, regulation 14(1). If it is safe and sound considering the type of ship and its technical equipment for the ship to operate with a little crew or without a crew at all, this is possible according to the wording of regulation 14. According to its wording, regulation 14 does not require a minimum safe manning». Japan, while contemplating this eventuality, seems more cautious: «[...] it may be possible to introduce some MASS technology without any amendments to current regulations. However, excessive use of such an approach may have a negative impact on safety. In this regard, it is necessary to form a common understanding among stakeholders regarding the extent to which equivalent clauses should be used to accommodate MASS technology in the current regulatory framework». See IMO, MSC 99/5/9, Regulatory Scoping Exercise for the Use of Maritime Autonomous Surface Ships (MASS), Japan's perspective on regulatory scoping exercise for the use of MASS, 13 March 2018, p. 4.

³⁵⁴ This issue is analyzed by COITO J., *Maritime Autonomous Surface Ships. New Possibilities – and Challenges – in Ocean Law and Policy*, cit., p. 305; SMEELE F., *Switching of Regulatory Requirements: Flag State Exemptions as a Tool to Facilitate Experiments with Highly Automated Vessels and their Operational Implementation*, cit., p. 72-79.; KLEIN N.; GUILFOYLE D.; KARIM M. S.; MCCLAUGHLIN R., *Maritime Autonomous Vehicles: New Frontiers in the Law of the Sea*, cit., p. 728-29; VEAL R.; RINGBOM H., *Unmanned Ships and the International Regulatory Framework*, cit., p. 100-118; VEAL R.; TSIMPLIS M.; SERDY A.; NTOVAS A.; QUINN S., *Liability for operations in Unmanned Maritime Vehicles with Differing Levels of Autonomy*, 2016, cit., p. 45.

task is surely not to enlarge the scope of reg. V/14,1, which – as noted before – is an extended and generic provision by itself³⁵⁵. For this reason, it seems that the recourse to the equivalence rule in this regard is neither particularly useful nor legitimate.

In final words, among the various theories aimed at demonstrating the compliance of the use of MASS to reg. V/14,1 of SOLAS, the most convincing approach seems that of emphasizing the dynamic nature of the term “manned”. This conclusion would allow the inclusion of the innovative cases brought by the technology of automation within its scope of application of reg. V/14,1 of SOLAS.

c) Interpretative analysis of the international rules on the training of the actors of navigation with regard to the use of MASS

Once concluded the study about *quantity*, the analysis on the legality of the use of MASS proceeds by addressing the international rules dealing with the *quality* of the human actors involved in navigation.

The regulation of the training and the certification of sea-workers is provided by the STCW Convention, whose purpose is to set:

«minimum standards relating to training, certification and watch-keeping for seafarers»³⁵⁶.

As reported before³⁵⁷, the STCW is a static treaty, whose provisions find some difficulties in enlarging their scope of application beyond what is explicitly enshrined in their texts: since a first glance, therefore, the STCW looks particularly unfit to be applied to the revolutionary use of autonomous ships.

From an ergonomic perspective, the use of MASS is characterized by an innovative relationship occurring between the subjective and the objective elements of navigation. Indeed, the recourse to automation technology determines an *increasing relevance of supervision and control activities*, specularly implying a sharp decrease of the manual

³⁵⁵ See section 4(a) of this chapter.

³⁵⁶ IMO official website www.imo.org.

³⁵⁷ Ibid.

and physical operations occurring on board the ship³⁵⁸. Intuitively, the higher degree of automation is considered, the more this conversion process is intense; potentially, in the case of MASS belonging to the last two automation classes, traditional maritime activities are no longer necessary: navigation can now be fully performed by *remote operators*, without any kind of involvement of seafarers on board the ship. Accordingly, the most relevant innovation brought by MASS is the central position played by remote operators, whose job mansions are largely different from those of traditional sea-workers³⁵⁹.

This disruptive revolution determines a clear misalignment between the ergonomic reality of MASS navigation and the STCW's provisions, *whose scope of application looks limited in regulating the quality of traditional maritime figures*. Indeed, its article III states that:

«The Convention shall apply to *seafarers serving on board* sea-going ships entitled to fly the flag of a party [...]»³⁶⁰.

Similarly to what argued with regard to reg. V/14,1 of SOLAS, it is quite intuitive that States parties, when signing the first version of the STCW, could not have been aware of the recent innovations brought by automation. Even in this case, then, it arises the inter-temporal dilemma of whether art. III of STCW may now be interpreted evolutionary, and so even covering the innovative figure of the remote operator.

In this regard, some States are recently opening to an evolutive interpretation of STCW provisions. For example, Denmark declared that:

«When it was developed [...], the STCW Convention has not taken account of ships' possibility of being unmanned in the longer term. However, it must be presumed that the obligations of an *operational nature* imposed on seafarers by the STCW Convention will apply analogously to persons performing similar work functions related to autonomous ships as those prescribed by the STCW Convention, though these work functions will be performed from places other than on board the ship»³⁶¹.

³⁵⁸ See section 1(c) of this chapter.

³⁵⁹ Ibid.

³⁶⁰ STCW Convention, article III (emphasis added).

³⁶¹ MSC 99-INF.3 - Final Report Analysis of Regulatory Barriers to the use of Autonomous Ships (Denmark), 18 January 2018, p. 25 (emphasis added).

Even other States – like Finland, Panama and the United States³⁶² – agree with this statement. In this respect, the IMO did not assume a proper position; until today, it has limitedly acknowledged the existence of this interpretative dilemma³⁶³.

Contrary to the reported positions, it is here sustained that the reconstruction of the original intention of the parties highlights the static nature of the rule under study; broadly speaking, *the STCW Convention looks unable to regulate the training and certification of remote operators*.

Starting with the analysis of the ordinary meaning of the terms of art. III, it is quite intuitive to perceive the rigidity of this provision. Indeed, it delimits the scope of application of the treaty in a specific and detailed way. Although this norm recalls to the generic and not conventionally defined term “seafarer”³⁶⁴, the specification of its location *on board the ship* suggests the intention of the State parties not to leave wide margins of interpretation in this regard.

This conclusion is even more confirmed through a systematic analysis of the Convention as a whole. Observing the STCW in its entirety, it consists of an overflowing *corpus* of technical requirements precisely modelled on the ergonomics of sea-workers’ involvement in *traditional* navigation. Just to provide few examples, rules concerning physical fatigue of seafarers³⁶⁵, or watch-keeping activities³⁶⁶, clearly imply a traditional idea of seafaring (on board)³⁶⁷. The adoption of the prescriptive normative approach is finalized to internationally standardize the minimum level of formation and training of the human actors of navigation³⁶⁸. For this very reason, the Convention does

³⁶² MSC, 99/INF.8, Agenda Item 5, Regulatory Scoping Exercise for the Use of Maritime Autonomous Surface Ships (MASS), Work Conducted by The CMI International Working Group on Unmanned Ships, Submitted by CMI, 13 February 2018, Annex 1, p. 12.

³⁶³ From the reading of the IMO RSE (p. 82-83), it emerges that the MSC has advanced two alternative solutions in dealing with this issue: (1), to explicitly enlarge the scope of application of the STCW with regard to remote operators; (2) to determinate that the remote operator is not a seafarer.

³⁶⁴ However, as noted in the previous section of this chapter – see section 4(d)(ii) - although STCW does not provide a specific definition of this term, “seafarer” has to be intended as precisely defined MLC conventions.

³⁶⁵ For example, see the text of STCW, regulation VIII/1.

³⁶⁶ Among others, see STCW, regulations II/1 and III/1.

³⁶⁷ MANUEL M.E., BAUMLER R., *The Evolution of Seafarer Education and Training in International Law*, cit., p. 488: «The competences addressed by the STCW Convention as amended, are predominantly cognitive and/or psychomotor in essence, and though the 2010 amendments saw the inclusion in the STCW Code of elements such as leadership and managerial skill, they do not cover in appropriate detail, the wider scope of the affective domain which would include professionalism, ethical behaviour, cultural/diversity sensitivity/awareness, environmental consciousness, team behaviour etc».

³⁶⁸ See section 4(b) of this chapter.

not provide generic norms; on the contrary, it sets an overflowing body of *static* technical standards concerning the training of seafarers.

In addition, it is interesting to note that, although the STCW has been intensively adjourned through many revision processes, State parties never enlarged the scope of application to new and emerging classes of sea-workers other than traditional seafarers. In particular, the recent “Manila amendments” of 2010 did not deal with the regulation of remote operators. This last consideration seems to further demonstrate that the will of the parties was and – until now – still is that of limitedly regulating the quality of seafarers working on board the ship³⁶⁹. Therefore, remembering that the remote operators are the exact opposite of on board personnel from an ergonomic perspective³⁷⁰, the large majority of STCW provisions looks unable to regulate their training and formation.

Accordingly, it should be concluded that the static nature of the STCW provisions excludes their applicability to the human involvement in remote navigation: as a consequence, *IMO law does not provide any rule about the training and formation of the remote operators*³⁷¹. This normative gap shows the high level of novelty introduced by the use of MASS for what concerns the international legal framework on the subjective element of navigation. As noted before, the use of these new means of maritime transport is not necessarily carried out by performing “traditional seafaring activities”. Of course, in the case of MASS belonging to the first two classes of automation, there is still the presence of on board-personnel; therefore, their training and formation are still regulated by STCW³⁷². In any case, even the control of these

³⁶⁹ NORRIS A., *Legal Issues Relating to Unmanned Maritime Systems Monograph*, cit., p. 54: «Since UMSs are, by their very nature, unmanned, it seems obvious that the STCW Convention should not apply to them».

³⁷⁰ VAN HOOYDONK H., *The Law of Unmanned Merchant Shipping - An Exploration*, cit., p. 413: «The seafarer’s status is based on the specific characteristics of being employed at sea, which include a markedly international environment, physical fitness requirements, safety risks, discipline, long-term presence at the place of work and the commensurate absence from home with limitations on family and social life, and the possibility of a physical transfer to another ship. A shore-based vessel controller does not have to face any of these factors. It is difficult to think of a valid reason why his employment should be governed by the specific rules of maritime law».

³⁷¹ European Maritime Safety Agency (EMSA), *Study of the risks and regulatory issues of specific cases of MASS* (part 1), cit., p. 75.

³⁷² IMO, RSE, p. 82: «With seafarers serving on board, the Convention and Code in its entirety remains applicable to MASS. Some requirements may need to be amended based on the introduction of new technologies and/or automated processes. Changes can be made through the existing Convention processes and flexibilities – through authorized equivalencies or amendments to the codes or regulations».

ships is mainly performed by remote operators, whose quality level is, at the state of art, not regulated by International Law.

This problem is even more acute when dealing with MASS belonging to the third and fourth classes of automation. In such cases, navigation is completely performed by this new class of sea-workers, who control or supervise the ship from shore. In this scenario, the training and formation of the human actors involved in MASS navigation are not internationally regulated. This conclusion is supported by several experts³⁷³. Among many others, the CMI affirmed that:

«Unmanned operability introduces into the maritime domain an *entirely new range of personnel charged with navigating the relevant ship. Such personnel currently lack a counterpart qualification regime*. This must be addressed if unmanned shipping is to become widespread. In the absence of a uniform qualification standard for shore-based controllers and pre-programmers and also a codified standards regime for the relevant communications technology, satisfying a maritime administration as to the safety of an unmanned ship becomes more challenging»³⁷⁴.

d) Interpretative analysis of international rules on circulation of ships with regard to the use of MASS

As noted before, unlike the rules on the manning and the formation of sea-workers, the international provisions dealing with the *activity* of navigation look particularly variegated: this set of international rules is composed of many different norms, some of which widely generic, while others extremely technical and detailed³⁷⁵. For this reason, a complete analysis of the rules on the circulation of ships and their applicability to the

³⁷³ RINGBOM H., *Developments, Challenges and Prospects at the IMO*, in RINGBOM H.; RØSÆG E.; SOLVANG T., (eds.), *Autonomous Ships and the Law*, cit., p. 62.; MUSI M., *Il concetto giuridico di nave*, Bologna, 2020, p. 135-136; MANUEL M.E., BAUMLER R., *The Evolution of Seafarer Education and Training in International Law*, cit.; LI RUI, *On the Legal Status of Unmanned Ships*, cit., p. 185; DEAN P.; CLACK H., *Autonomous Shipping and maritime law*, in SOYER B.; TETTENBORN A. (ed.), *New Technologies, Artificial Intelligence and Shipping Law in the 21st Century*, London, 2019, p. 78; RINGBOM H., *Regulating Autonomous*, cit., p. 157; EDER B., *Unmanned Vessels: Challenges Ahead*, Inaugural Francesco Berlinghieri Lecture, CMI, 2018; VEAL R.; RINGBOM H., *Unmanned Ships and the International Regulatory Framework*, cit.; VAN HOOYDONK H., *The Law of Unmanned Merchant Shipping - An Exploration*, cit; NORRIS A., *Legal Issues Relating to Unmanned Maritime Systems Monograph*, cit., p. 54.

³⁷⁴ CMI, *CMI International Working Group Position Paper on Unmanned Ships and the International Regulatory Framework*, 2018, p. 16 (emphasis added).

³⁷⁵ See section 4(c) of this chapter.

use of MASS cannot have a monolithic and univocal character. In this respect, it must be anticipated that the following pages mainly address COLREGs provisions because of the pivotal role they play within this normative field³⁷⁶.

Starting with the analysis, it is self-evident that the COLREGs Convention was thought for regulating the circulation of traditional manned ships; its rules deal with maritime human behaviours, which have always been conducted on board. This conclusion is confirmed by the reading of its provisions: they constantly refer to ergonomic and sensorial human characteristics, clearly implying the presence of seafarers on board the ship.

In particular, rules 2 and 8 provide the general duty of “*good seamanship*”, according to which sea-workers shall always conform with the «ordinary practice of seamen»³⁷⁷. Again, when dealing with *look-out activities*, rule 5 of COLREGs explicitly imposes sea-workers to control the ship by “*sight and hearing*”³⁷⁸. The use of these words refers to sensorial perceptions, which are a prerogative of human beings; intuitively, without humans, a ship cannot see and cannot hear.

Similarly to what was argued in the previous pages of this research, the interpretative analysis of COLREGs’ provisions can be conducted through the lens of the inter-temporal dynamicity given by the State parties. Coherently with this approach, it is now intended to understand whether their original will was to allow these norms to follow the ergonomic revolution brought by MASS technology.

Starting with the general principle enshrined in COLREGs rules 2 and 8, the terms “seamen” and “seamanship” are indisputably generic. They recall to the millennial maritime culture and knowledge, that finds its origins on board the ships, but they do not specify how to concretely perform such duties; instead, they merely require sea-workers to act in a cautious, thoughtful and predictable way.

Unless proven otherwise, the generic nature of the principle of good seamanship does not exclude the possibility to interpret it evolutionary; precisely, it looks able to cover even new modalities for performing navigation, including the remote control of the ship. Even if it seems quite paradoxical to qualify remote operators as maritime

³⁷⁶ Precisely, this section is focused on the analysis of rules 2,5 and 8 of COLREGs. Precisely, these are the provisions that are most challenged by the use of MASS.

³⁷⁷ COLREGs, rules 2(a) and 8(a).

³⁷⁸ COLREGs, rule 19.

experts – since they carry out activities from shore – it is sustainable that the principle under study can be legitimately applied to the use of MASS; by observing the ordinary meaning of the terms of rules 2 and 8, there is no particular reason to retain that this duty limitedly deals with the physical control occurring on board the ship.

Indeed, the rationale of COLREGs provisions is to require that the vessel shall be controlled in an expert and conscious way³⁷⁹. Traditionally, it has always presupposed the experience of sea-men; however, if nowadays the technology allows to comply with this requirement even without people on board, it is admissible to consider that the use of MASS complies with COLREGs rules 2 and 8. In few words:

«The quoted rules [2 and 8] are neutral with respect to who makes the decision or from what location»³⁸⁰.

For all these reasons, it is here sustained that the actual configuration of the principle of good seamanship well-regulates the subjective element of navigation of MASS, independently of the degree of automation taken into account. Potentially, some concerns may arise with regard to the fourth level of automation. In fact, rules 2 and 8 necessarily presuppose a constant human involvement in the decision-making loop; according to COLREGs, it seems not possible to leave automation systems completely “alone” in the performance of navigation, since a constant human control is always required³⁸¹. In any case, beyond this limit, the principle of good seamanship does not pose particular issues concerning its applicability to the use of MASS.

³⁷⁹ STEVENS F., *Seaworthiness and Good Seamanship in the Age of Autonomous Vessels*, cit., p. 254.

³⁸⁰ RINGBOM H., *Regulating Autonomous Ships*, cit., p. 155. A similar position has been expressed by many States during the drafting of the IMO Regulatory Scoping Exercise for the use of MASS. According to the majority of States (MSC, 99/INF.8, Agenda Item 5, Regulatory Scoping Exercise for the Use of Maritime Autonomous Surface Ships (MASS), cit., Annex 1, p. 8): «Unmanned operation should not necessarily be considered contrary to good seamanship» (Argentina, Canada, China, Denmark, Finland, Germany, Italy, Japan and Panama). On the contrary, Spain, Croatia and Malta stated that it is possible that the operation of an unmanned ship would be held contrary to this standard. Partially contrary to these positions, see European Maritime Safety Agency (EMSA), *Study of the risks and regulatory issues of specific cases of MASS* (part 1), cit., p. 75.

³⁸¹ See COITO J., *Maritime Autonomous Surface Ships. New Possibilities – and Challenges – in Ocean Law and Policy*, cit., p. 303; RINGBOM H., *Regulating Autonomous Ships*, cit., p. 155; CMI, *CMI International Working Group Position Paper on Unmanned Ships and the International Regulatory Framework*, 2018, p. 14: «The Rule requires contemporaneous human judgement in the decision making loop, not least in deciding on when a COLREG prescribed manoeuvre is required or alternatively, something potentially completely different. [...] Even autonomous ships under permanent supervision paired with an ability to assume remote control arguably satisfy this requirement»; VAN HOOYDONK H., *The Law of Unmanned Merchant Shipping - An Exploration*, cit., p. 414.

Unlike what has been already observed, instead, the literal interpretation of rule 5 of COLREGs gives rise to more critical thoughts. Indeed, when dealing with the regulation of look-out activities, this norm explicitly requires sea-workers to maintain constant control over navigation by “*sight and hearing*”, as well as all available technological means³⁸². The explicit reference to the sensorial perceptions, a prerogative of human beings, highlights the specific intention of the drafters not to allow that look-out activities are merely performed through the use of technological tools³⁸³, such as, for example, radar systems³⁸⁴.

This clarification poses the interpretative dilemma of whether the current version of the COLREGs Convention excludes the possibility to perform look-out activities from a remote location. In this respect, two different interpretations may be alternatively sustained; from one side, it could be argued that the text of rule 5 specifically requires the presence of human actors on board the ship. From the other side, due to the fact that digitalization of communication between ships and shore-based operators allows controllers to see and hear *from a remote place*³⁸⁵, one may argue that look-out requirements are fulfilled even when they are performed from shore; according to this position, look-out activities still exist, and they still consist of human sensorial perceptions, regardless of that they are realized from shore.

Once noted that the literal interpretation leads to uncertain and conflicting results, the analysis of the preparatory works of the treaty may be of some help. In the author’s view, it looks particularly interesting to report the essential parts of a debate that occurred between the State parties during the “Conference on revision of the International Regulations for Preventing Collisions at Sea”³⁸⁶. On that occasion, State delegates discussed about the meaning to give to the phrase “sight and hearing”

³⁸² COLREGs, rule 5.

³⁸³ In ancient times, the “traditional” conception of look-out was explained by U.S. Courts in the following way: «[T]hey must be persons of suitable experience, properly stationed on the vessel, and actually and vigilantly employed in the performance of that duty» (*Chamberlain v. Ward*, 62 U.S. (21 How.) 548, 570 (1858)).

³⁸⁴ It is interesting to note that, during the preparatory works of the text of COLREGs 1970, the original text of rule 8 highlighted the uncertainties of State parties in entrusting the look-out activities exclusively to radar technology: «Assumptions made on the basis of scanty information, especially that obtained by radar, are dangerous and shall be avoided. *Radar range and bearing alone is insufficient to determine risk of collision*» (emphasis added).

³⁸⁵ The meaning to give to the term “digitalization” is explained in note **Error! Bookmark not defined.** of the present chapter.

³⁸⁶ IMCO Conference on revision of the International Regulations for Preventing Collisions at Sea, 1972, Summary record of the second meeting of 5 October 1972, CR/CONF/C.2/SR.2, 25 May 1973.

provided by rule 5 of COLREGs. Since its central interest for the topic approached, the following sub-section will report what was observed by States before the adoption of the treaty, in order to frame it within the context of the present discussion.

i) The debate on “sight and hearing” at the IMO Conference on revision of the International Regulations for Preventing Collisions at Sea of 1972

Fifteen days before the conclusion of the COLREGs – precisely, on 5th October 1972 – the second committee for the revision met in London, at the IMO headquarters. During the second meeting, State delegates were called to discuss the final drafting of rule 6 [now rule 5] concerning look-out activities, whose original text is reported below:

«Every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision. *Assumptions made on the basis of scanty information (especially obtained by radar) shall be avoided*»³⁸⁷.

During this meeting, the committee approved to delete the second sentence of the provision. On that occasion, State delegates had the opportunity to discuss about further textual aspects related to rule 6; precisely, their attention was mainly focused on the phrase “sight and hearings”.

The Canadian delegation started the debate, wondering if it was necessary to make explicit reference to this locution. After all, the following phrase “all available means” would include those activities³⁸⁸. In response, Mr. Lameyer, head of the Netherlands delegation, affirmed that the specification was aimed to «place emphasis on the use of human sense»³⁸⁹. At this juncture, Canada asked whether this wording was intended to «preclude the possibility of *ever automating* the look-out activities»³⁹⁰. The discussion was addressed by Captain Manson (UK), who affirmed that, since:

³⁸⁷ This text was proposed by United Kingdom, Soviet Union and Netherlands delegations (emphasis added).

³⁸⁸ IMCO Conference on revision of the International Regulations for Preventing Collisions at Sea, 1972, cit., p. 3.

³⁸⁹ Ibid., p. 4.

³⁹⁰ Ibid (emphasis added).

«any device which would eliminate the need for a human being on look-out belonged to the distant future [...], *A provision allowing for the substitution of such a device could be left to the amendment procedure*»³⁹¹.

Afterwards, no delegation contradicted the UK position. Once concluded the discussion, after having taken into account all these positions, the second committee approved the joint text as amended (deletion of the second sentence), and so confirming the explicit recourse to the phrase “sight and hearings” provided by rule 6 of COLREGs (now rule 5).

The reported analysis of the preparatory works of COLREGs offers some points of reflection concerning the level of dynamicity given by the parties to rule 5. In the author’s view, it is quite pacific that States have originally intended to give particular emphasis to human direct involvement on the look-out; the specific request to perform this action through *direct* human sensorial perceptions clearly shoes the point.

Furthermore, what looks particularly interesting for this study is that State parties intended to give a strict margin of dynamicity to rule 5 of COLREGs, recalling the need to amend the provision in the eventuality of a future automatization of such an activity. More precisely, *the parties envisaged the drafting of a static norm, not capable of following the ergonomic revolution eventually brought by the technology of automation.*

Coherently with this position, it is here sustained that the use of MASS of third and fourth levels does not comply with rule 5 of COLREGs. Indeed, remotely controlled ships cannot perform look-out activities based on the direct “sight and hearing” because unmanned navigation implies the automatization of such operations³⁹².

In contrast to what has been already affirmed, some scholars argue that the use of these new means of maritime transport conforms with the COLREGs. Their position is based on the assumption that:

«[...] the present generation of unmanned craft use sophisticated aural and camera sensors to project the vessel’s vicinity to shore-based remote controller. This arguably satisfies the Rule 5 requirement with the requisite human input still firmly in the

³⁹¹ Ibid (emphasis added).

³⁹² A similar position is expressed by DEAN P.; CLACK H., *Autonomous Shipping and maritime law*, cit., p. 89: «the COLREGS were written with conventional ships in mind, and while MASS may have the technology to comply with the manoeuvring rules, they will be unable to strictly comply with rules pertaining to lookout for example».

appraisal process in the sense that the use of an electronic aids does not take the arrangement outside of the spirit or wording of Rule 5. Neither does its shore-based orientation»³⁹³.

In the author's view, this conclusion is slightly less adherent to the original will of the parties rather than the above-mentioned one. Indeed, while it could be argued that, due to the digitalization of information, look-out activities performed from shore are still based on a certain "sight and hearing", it is also true that such a sensorial perception is intrinsically different from the traditional one³⁹⁴. In fact, in this case, the human gathering of information occurs *through* the avail of technological instruments, which are pre-programmed, and so necessarily more limited than the un-programmed capability of human beings of perceiving the phenomenal reality. In few words, *human perception is not "direct"*, as (presumably) required by the law. Albeit this difference will be progressively reduced by the technological progress, it will never cease to exist. Since State parties opted for a *static* provision in this respect³⁹⁵, therefore, it seems more correct to conclude that rule 5 does not allow the full digitalization and automation of look-out activities. Partially concurrent with this view, the IMO has recently acknowledged that the use of unmanned means of maritime transport:

«will require necessary amendments to COLREG in order to align itself with future autonomous shipping without seafarers on board and bringing about a significant reduction in the level of human interaction»³⁹⁶.

³⁹³ CMI, *CMI International Working Group Position Paper on Unmanned Ships and the International Regulatory Framework*, cit., p. 14. The same position is adopted by DEAN P.; CLACK H., *Autonomous Shipping and maritime law*, cit.; VEAL R; RINGBOM H., *Unmanned Ships and the International Regulatory Framework*, cit., p. 100-118; LI RUI, *On the Legal Status of Unmanned Ships*, p.183.

³⁹⁴ This position is supported by European Maritime Safety Agency (EMSA), *Study of the risks and regulatory issues of specific cases of MASS* (part 1), cit., p. 74: «COLREG Rule refers to the human qualities "sight and hearing". This wording creates the assumption that human physical accessibility is considered indispensable in the monitoring role. The Rule applies explicitly at "all times", and COLREG offers no exemptions or possibilities for equivalent standards and applies to all ships».

³⁹⁵ Concerning the static nature of the COLREGs Convention and, more precisely, of its Rule 5, see CORIO J., *Maritime Autonomous Surface Ships. New Possibilities – and Challenges – in Ocean Law and Policy*, cit., p. 300.

³⁹⁶ IMO RSE, p. 86.

Therefore, and in compliance with what was argued by the UK delegation during the final drafting of the convention³⁹⁷, *the automatization of the look-out could comply with COLREGs only after its eventual revision through emendation process.*

e) Interpretative analysis of the legal status of sea-workers with regard to the use of MASS

The advent of MASS is revolutionizing the essential features characterizing the maritime labour. While “traditional” working figures tend to evolve and partially disappear, new employments arise. As constantly recalled during this research, MASS workers mainly carry out supervisory works: they are called to monitor the smooth running of automated operations. Moreover, these activities may be conducted from a remote location.

In addition to the rules on *quantity*, *quality* and the *activity* of navigation, the use of MASS strongly impacts on the definition to give to the international *legal status* of the sea-workers³⁹⁸: when dealing autonomous means of maritime transport, indeed, the IMO itself has considered it as an high-priority issue³⁹⁹. Accordingly, section 5(e) will address this residual topic. Precisely, it will be intended to understand whether the legal status of the master and of the seafarer evolves following the factual innovations brought by the technology of automation and, therefore, if these working figures will continue to exist in the forthcoming era of MASS navigation.

i) The legal status of the master in MASS navigation

Recalling what has been previously argued⁴⁰⁰, since the lack of a generic definition, the international legal status of the master shall be reconstructed through the analysis of the international rules dealing with his/her duties and responsibilities. Thanks to this

³⁹⁷ See note 388 of this chapter.

³⁹⁸ KLEIN N.; GUILFOYLE D.; KARIM M. S.; MCLAUGHLIN R., *Maritime Autonomous Vehicles: New Frontiers in the Law of the Sea*, cit., p. 728.

³⁹⁹ IMO RSE, p. 8.

⁴⁰⁰ See section 4(e)(i) of this chapter.

deductive operation, it has been assumed that he/she is *the person in charge of the activity of navigation*: broadly speaking, the master is the individual who exercises the decision-making power over the ship and who bears the responsibilities deriving from it⁴⁰¹. His/her position of command makes this figure fundamental for the configuration of safe navigation in compliance with what is required by International Law.

With regard to the use of MASS, it may be questioned whether the international requirement to have a master in charge of the ship is still respected⁴⁰². Indeed, from a factual perspective, MASS' master strongly differs from the traditional one. Before automation, this role has been necessarily performed by an individual on board; therefore, common experience has always conceived its physical attendance on board the ship as an essential feature characterizing this employment.

Instead, after the rise of automation, the position of being in charge of the ship does not require *per se* the physical attendance of the master on board. Precisely, remotely controlled MASS may be governed by human actors working from shore⁴⁰³. This relevant innovation makes urgent the need to understand whether the international requirement to have a master in charge of the activity of navigation is still respected by the use of remotely controlled MASS⁴⁰⁴.

In order to answer this question, it must be stressed the *generic and undefined nature* of the term "master" adopted by IMO treaties. Therefore, its legal status may potentially evolve over time. Clearly, when State parties originally drafted international provisions dealing with this figure, they surely implied his/her physical presence on board the ship. However, this particular characteristic has never explicated; accordingly, the *essence of the legal status of the master is just his/her position of command over the activity of navigation, regardless of his/her physical location*⁴⁰⁵.

⁴⁰¹ Ibid.

⁴⁰² UNCLOS, art. 94,4(b).

⁴⁰³ The first pioneering projects of MASS of the third and fourth levels clearly testify the feasibility of such a new modality for being in charge of the ship. For more technical information, see AAWA, *Remote and Autonomous, Ships: The Next Steps*, 2016.

⁴⁰⁴ IMO RSE, p. 8: «It was recognized that in a substantial number of instruments there was a need to clarify the meaning of the terms master, crew or responsible person. The role, responsibility and definition of master, especially for degrees of autonomy Three and Four where personnel on the shore side might control the ship, were considered to be a common theme identified in several instruments as a potential gap».

⁴⁰⁵ MCKENZIE S., *When is a Ship a Ship? Use by State Armed Forces of Uncrewed Maritime Vehicles and the United Nations Convention on the Law Of The Sea*, cit., p. 16: «Nevertheless, as long as there is a person who is responsible, and the flag state is satisfied that this person has the requisite knowledge and access to the device to operate it safely (in the context of its capabilities and its purpose)

For all these reasons, since the Law of the Sea attributes an *evolutive nature to this figure*, it is here sustained that an individual in charge of the ship from shore can be legitimately considered as the master: broadly speaking, where the remote operator is able to fulfil the decision-making power required by the law, he/she is the master of the ship⁴⁰⁶.

In order to confirm this conclusion, it is interesting to report the definition of “master” provided by the *Maritime Autonomous Surface Ships UK Code of Practice*, according to which:

«For the purposes of this Code, the term “master” should mean a specific person officially designated by the owner of the MASS as discharging the responsibilities of the Master of the MASS. This will be an employee of the company who has been assessed as competent to discharge these responsibilities in accordance with the provisions of this Code. *This person may be located anywhere provided that the required level of command, control and communication can be maintained to discharge these duties*»⁴⁰⁷.

Therefore, even the use of unmanned MASS theoretically complies with the duty over flag States to make sure that ships flying their flag have a master in command of the activity of navigation. Although this figure is far from its original fashion (from an ergonomic perspective), the “remote commander” is still in charge of the ship, and so he/she is the master from a purely legal perspective⁴⁰⁸.

The fourth level of automation poses much more concerns in this respect. For what concerns ships that are «able to make decisions and determine actions by itself»⁴⁰⁹, the definition of the “command” may assume highly innovative meanings. In this occurrence, indeed, one may argue that:

and will be liable as master if there are any incidents, this should be enough to satisfy the requirement. Existing regulations do not require a master to be on the bridge navigating at all times even though they have responsibility the entire time».

⁴⁰⁶ In this regard, see BAUGHEN S., *Who is the master now?*, cit.; MANDRIOLI D., *The International Duty to Assist People in Distress at Sea in the Era of Unmanned Navigation: No Place for People On Board*, cit., p. 87-88. Contrarily to this position, see SCHELIN J., *Manning of Unmanned Ships*, cit., p. 276: «A number of the duties that the master has today can only be fulfilled by a person who is physically present on board the ship and consequently is doubtful whether an operator controlling the ship from ashore could be considered as the master of the ship».

⁴⁰⁷ Maritime UK, *Maritime Autonomous Surface Ships UK Code of Practice*, 2019, p. 21 (emphasis added).

⁴⁰⁸ PRITCHETT, P. W., *Ghost ships: Why the law should embrace unmanned vessel technology*, cit., p. 209: «The remote operator of a USV is in control of the vessel just as much as a person physically present aboard it would be».

⁴⁰⁹ IMO RSE, p. 4.

«Such a ship seemingly obviates the role of a human “master”, as there is no such person in command»⁴¹⁰.

At the state of art, this (quite futuristic) issue is completely an open question. Neither the IMO nor States have assumed a position in this respect. In scholarship, instead, some hypothesis have been advanced⁴¹¹. For example, prof. Allen has wondered whether the *programmer* of the MASS system could be allegedly considered as the master in charge of the activity of navigation⁴¹². In the current lack of practice in this respect, it is quite hard to go further on this specific issue. In any case, what has emerged during this analysis is that the “master” is an evolutive legal concept; potentially, it may assume new shapes and forms depending of the level of technology achieved.

ii) The legal status of the seafarer in MASS navigation

In the previous pages of this chapter it has been noted that the term “seafarer” is defined by the MLC as the person:

«[...] who is employed or engaged or works in any capacity *on board* a ship»⁴¹³.

Once acknowledged this, it is here intended to tackle the question of whether the international legal status of the seafarer is able to evolve over time, and, precisely, if it adapts to the technological innovations brought by MASS⁴¹⁴. Precisely, since the technology of automation revolutionizes the ergonomic reality on the basis of which

⁴¹⁰ COITO J., *Maritime Autonomous Surface Ships. New Possibilities – and Challenges – in Ocean Law and Policy*, cit., p. 270.

⁴¹¹ For more information about this debate, see COITO J., *Maritime Autonomous Surface Ships. New Possibilities – and Challenges – in Ocean Law and Policy*, cit., p. 270.

⁴¹² ALLEN C.H., *Determining the Legal Status of Unmanned Maritime Vehicles: Formalism vs Functionalism*, cit., p. 489.

⁴¹³ MLC, art. 2(f) (emphasis added).

⁴¹⁴ Interestingly, the IMO, in drafting the RSE, affirmed that: «Qualifications, responsibility and the role of remote operator as seafarer was one of the most complex issues to be addressed».

these rules were traditionally conceived, the aim of these last pages is to observe how the use of autonomous ships challenges the legal concept of the “seafarer”.

From a methodological perspective, the present study needs to take into consideration the huge differences characterizing the four degrees of MASS automation. Indeed, with regard to the use of autonomous ships belonging to the first two classes, these new means of maritime transport still require the presence of sea-workers on board the ship. Even if their job duties may differ from traditional ones, they are physically and directly involved in navigation such as traditional mariners. Therefore, it is sustainable that these sea-workers may be considered as *seafarers*. Actually, indeed, they are covered by the definition provided in the above mentioned ILO conventions.

However, MASS navigation largely depends on remote operators’ behaviours. Clearly, this characteristic progressively intensifies as the level of automation increases. In particular, from the third MASS degree onwards, the role of remote operators becomes so predominant to make on board activities theoretically not requested.

This fact stimulates the question of *whether international rules on seafarers can be dynamically interpreted to cover the emerging figure of remote operators*, which is progressively substituting the traditional mariners in the performance of the activity of navigation. This topic has been partially addressed in the previous analysis concerning the international rules of the formation of sea-workers⁴¹⁵. However, it seems useful to deal with it adopting a more holistic approach, and so not delimiting the analysis with exclusive regard to the applicability of STCW provisions.

Contrarily to the figure of the “master”, the legal concept of the “seafarer” appears to be fixed and well-specified by the law: international rules on safety of navigation define “seafarer” as every sea-worker performing maritime activities *on board the ship*. This conclusion is reached from the contextual reading of the ILO and IMO rules and standards⁴¹⁶. The physical attendance of seafarers on board is the main peculiarity characterizing their working condition: the sea is a dangerous environment, which poses many risks to mariners. Strictly related to this peculiarity, the majority of international rules on safety of navigation is finalized to protect them from the typical threats occurring at sea. Precisely, International Law sets detailed and technical requirements,

⁴¹⁵ Precisely, see section 5(c) of this chapter.

⁴¹⁶ In particular, see STCW, art. III.

which are modelled on the typical ergonomic features implying their physical presence on board⁴¹⁷.

For all these reasons, when interpreting the above-mentioned provisions, it seems difficult to adopt an evolutionary approach⁴¹⁸: on the contrary, it is sustained that the legal status of the seafarer has to be intended *statically*. Indeed, when dealing with this working figure, State parties clearly refer to that category of employees characterized by the on board location. In few words, at the state of the art, *international norms on seafarers cannot be applied to remote operators*⁴¹⁹. This conclusion, that was previously affirmed with limited reference to the STCW convention, must be further extended to the entire legal framework on safety of navigation.

What emerges from the present analysis is that the technology of MASS is introducing a new, *unregulated*, figure of maritime work. The growing relevance of remote operators in autonomous navigation highlights the current lack of IMO rules in governing the “maritime” human activities performed from shore. The consequences of this normative gap are particularly acute when dealing with MASS belonging to the third and fourth classes of automation.

In any case, the solution to this emergent problem cannot be reached by extending *tout court* the scope of application of international norms on seafarers to remote operators; as already noted, indeed, States did not opt for an evolutive interpretation in this regard⁴²⁰.

This conclusion is based on two grounds. First, the text of the conventional definitions of the word “seafarer” literally excludes this interpretation. Second, the main purpose of the international rules composing the legal status of the seafarers is to protect them from the traditional maritime threats attempting their direct involvement on board the ship; therefore, the application of seafarer’ provisions to the remote operator would

⁴¹⁷ Just to provide a few examples, the current version of rules concerning fatigue of seafarers or rules on watch-keeping activities clearly imply the physical attendance of seafarers on board the ship.

⁴¹⁸ KARLIS T., *Maritime Law Issues Related to the Operation of Unmanned Autonomous Cargo Ships*, cit., p. 121-122.

⁴¹⁹ CHIRCOP A., *Testing International Legal Regimes: The Advent of Automated Commercial Vessels*, German Yearbook of International Law, 2018, p. 24.

⁴²⁰ On the same view, see KARLIS T., *Maritime Law Issues Related to the Operation of Unmanned Autonomous Cargo Ships*, cit., p. 123-124: «The flag states that are entrusted to take measures to “ensure safety at sea” will need to reinvent the training schemes to accommodate the need of a shore-based crew while also adhering to the STCW requirements».

be not only incorrect but also largely ineffective, since the latter is the exact opposite of the former from an ergonomic point of view.

6. The challenge of the regulation of the use of MASS in the near future: some conclusive reflections

The present chapter has analyzed how the use of MASS impacts on the international regulation of the ergonomics of navigation; these conclusive pages report final remarks in this regard, with the aim to provide some food for thought about the next steps the international community is called to take in order to manage this technological revolution.

During the first part of the chapter⁴²¹, the process of the reconstruction of the international legal framework on the activity of navigation has illustrated some of the main features characterizing this field of law. Precisely, the analyzed rules are united by the common goal to ensure the highest possible level in terms of safety of navigation.

This purpose is reached through the composition of a complex legal framework, consisting of a plurality of customary and conventional norms. From this side, more general rules are provided by the UNCLOS, which imposes on States to conform to the “generally accepted international rules and standards”. The latter norms, drafted by the “competent international organization”, are mainly provided by the IMO conventions, among which SOLAS, STCW and COLREGs stand for relevance. The wide acceptance and applicability of these treaties realize the dynamism in drafting the international regulation on safety of navigation inspired by UNCLOS.

With particular regard to the IMO rules and standards, it has been emphasized how these norms may differ one from each other. Indeed, while the majority of them establish extremely detailed standards, others provide more generic duties over flag states, leaving them a broad margin of appreciation⁴²².

Once outlined the main features of the normative legal framework analyzed, the research has addressed the emerging question of the international regulation of the use of MASS⁴²³. On this matter, it has been observed that not every IMO rule currently in force is able to cover the new ergonomic realities brought by the automatization of

⁴²¹ See sections 3 and 4 of this chapter.

⁴²² Just to provide some examples, rules on “quantity” of sea-workers and some rules concerning the “activity” of navigation. From this perspective, it has to be remembered the generic nature of the principle of “good seamanship”, provided by rule 2 of COLREGs.

⁴²³ See section 5 of the present chapter.

navigation, making urgent the need to carry out a complex process of treaty interpretation. This operation has offered uneven results: while norms on the quantity of sea-workers appear to be as sufficiently generic to evolve over time, international rules on quality seem unable to regulate the remote operators' involvement in the performance of navigation; while some general principles governing navigation are capable of well-regulating even unmanned and autonomous operations, others cannot be interpreted dynamically.

Given the growing relevance of this matter, the international community is called to face it with the utmost attention, in order to guarantee that the existing IMO rules and standards will be correctly adapted to the use of autonomous ships.

As previously observed, the IMO has already started addressing this issue⁴²⁴. Precisely, the MSC, in its session 101, approved the Interim guidelines for Maritime Autonomous Surface Ships (MASS) trials⁴²⁵, whose main purpose is to:

«authorize, or at least legitimize, the operation of MASS in international waters for limited periods»⁴²⁶.

Very recently, then, the IMO has concluded the RSE on the use of MASS⁴²⁷. In the MSC's view, this preliminary analysis shall lead to a next and more complex stage: the IMO and the States are now called to choose how to implement the existing regulation with regard to the use of MASS⁴²⁸. In this respect, more than one option is “on the table”; precisely, four paths look theoretically feasible:

- «I equivalences as provided for by the instruments or developing interpretations; and/or
- II amending existing instruments; and/or
- III developing new instruments; or

⁴²⁴ In this regard, see RINGBOM H., *Developments, Challenges and Prospects at the IMO*, cit.

⁴²⁵ MSC.1/Circ.1604, Interim Guidelines for MASS Trials, 14 June 2019. For a detailed analysis of this document, see RINGBOM H., *Legalizing Autonomous Ships*, cit., p. 450-453.

⁴²⁶ RINGBOM H., *Developments, Challenges and Prospects at the IMO*, cit., p. 62.

⁴²⁷ IMO RSE.

⁴²⁸ Since the debate is still ongoing within MSC, we believe that the preliminary nature of IMO's efforts in dealing with this issue precludes the possibility to consider these works as an expression of authentic interpretation of IMO conventions raised by the Organization. For a more detailed analysis on this matter, see COSTELLOE D.; FITZMAURICE M., *Interpretation of Secondary Instruments in International Law*, cit.

IV none of the above as a result of the analysis»⁴²⁹.

To date, the IMO has already advanced the opportunity to develop a «MASS Code» aimed at addressing the topic following a holistic approach⁴³⁰. In the author's view, this proposal looks surely functional to address the most relevant challenges brought by the avail of automation technologies. In this sense, it is comprehensible the position adopted by the MSC, according to which:

«Addressing every instrument or SOLAS chapter separately could lead to inconsistencies, confusion and raise potential barriers for the application of existing regulations to conventional ships. Therefore, a MASS instrument, instead of amending individual instruments, may be considered which can be made mandatory by means of amending an existing IMO convention, such as SOLAS. This instrument could preferably be developed following a goal-based approach, in line with the Guidelines developed by the Organization»⁴³¹.

At the same time, however, this solution alone may not be enough. During the development of the present research, indeed, it has been outlined that the regulatory plurality characterizing the legal framework under study imposes not to opt for a monolithic strategy; instead, it inspires different and cumulative solutions, which need to be well adherent to the nature of the single rule analyzed. Therefore, it seems preferable that *the four mentioned operations*⁴³² *will be adopted complementarily, and not alternatively*.

Coherently, it is here sustained that the regulatory modernization of the IMO conventions regarding the use of MASS needs to be conducted following the methodological approach outlined in section 5 of the present chapter. On that occasion, it has been highlighted that the preliminary analysis on the applicability of existing rules to MASS falls into the general question of the *temporal factor in interpreting written rules*. Precisely, the best decision among the four mentioned “legislative” solutions should be based on a detailed interpretative process aimed at reconstructing the original intention of the parties on the level of inter-temporal dynamicity originally intended for every single conventional provision analyzed. Only subsequently, then, it will be

⁴²⁹ IMO RSE, p. 5.

⁴³⁰ IMO RSE, p. 9.

⁴³¹ Ibid.

⁴³² See note 429.

possible to understand whether the specific norm must be changed, amended, simply clarified, or – finally – if it will be necessary to draft new rules and standards⁴³³. In this last occurrence, clearly, the adoption of a “MASS code” could be surely functional to well-regulate the novelties brought by autonomous ships.

The presented process needs to be conducted rigorously and scientifically⁴³⁴, always keeping in mind the fundamental purpose of *ensuring safety of navigation*. With regard to this last point, this research has reported that some States are proposing evolutive interpretations of IMO rules and standards, acting not always in compliance with what is codified by art. 31-33 of the VCLT. Presumably, their intention is to influence the interpretative operation, trying to demonstrate the slight need of changing the existing rules. Such an approach seems particularly interested in *ensuring legal certainty to the normative system currently in force*. Indeed, conscious of the growing economic benefits rising from the avail of this technology, the most developed maritime countries are sometimes resizing the dimension of interpretative issues emerging from the use of MASS⁴³⁵.

This approach appears to be contrary to the rationale of the international duties understudy⁴³⁶, which is to guarantee the highest possible level of safety of navigation, and not to indiscriminately encourage technological maritime innovation⁴³⁷. *New technical solutions are lawful as far as they comply with existing rules and standards on*

⁴³³ Actually, the RSE itself is based on this methodological approach. However, its manifest preliminary nature testifies the need to analyze more in-depth the legal challenges brought by MASS technology.

⁴³⁴ In this regard, it is of great help to recall to the renowned reflections of ANZILLOTTI D., *Corso di diritto internazionale*, cit., p. 103: «le parole adoperate devono considerarsi come il mezzo per esprimere un pensiero e che è soprattutto questo pensiero che va ricercato con l'interpretazione; che ogni norma va presa per quello che realmente contiene, senza estenderne o restringerne il significato, anche se il reale contenuto della norma possa sembrare all'interprete troppo ristretto o eccessivo».

⁴³⁵ In this respect, read what is affirmed by DEAN P.; CLACK H., *Autonomous Shipping and Maritime Law*, cit., p. 89: «Maritime law, as an extension of general commercial law, exists, broadly, to facilitate commerce. The nature of commerce changes with time. New opportunities and cost saving measures are exploited and commercial law must continue to evolve if it is to keep up with these developments. Until there are statutory definitions of MASS that can be adopted or existing conventions have been extended so that the status of MASS can be regulated, there will always be ambiguity».

⁴³⁶ According to article 31,1 of the VCLT, international written rules have to be interpreted *in good faith*. In our view, the reported interpretative approach could be considered in violation of the general requirement provided by VCLT.

⁴³⁷ RINGBOM H., *Developments, Challenges and Prospects at the IMO*, cit., p. 56.

*safety of navigation*⁴³⁸. Otherwise, these new means of maritime transport cannot be fully legitimate⁴³⁹.

Coherently to what now affirmed, the last pages of this chapter report some personal considerations about what regulatory strategy is the most convincing with regard to the normative sub-sets here analysed, namely the rules on (1) quantity, (2) quality, (3) activity and (4) on the legal status of sea-workers.

As far as the international rules on the manning of the ships are concerned, it has been argued that reg. V/14,1 of SOLAS has a flexible and dynamic nature, which allows to evolve over time. Therefore, among the various meanings that may potentially have, a “sufficiently and efficiently manned” ship can now be intended as a vessel controlled by an adequate number of human actors, *independently of their physical location*⁴⁴⁰. For this reason, it is arguable that there is no need to amend or implement the existing provisions; it should be limitedly clarified that, where they are sufficiently and efficiently controlled by remote operators, the use of MASS satisfactorily complies with SOLAS requirements, because this condition ensures the level of safety of navigation required by the law.

Instead, with regard to the rules on the training and formation of sea-workers, this research has reached an opposite conclusion, according to which the static nature of STCW provisions excludes their applicability to the human activities occurring from shore. This fact poses serious concerns. Remembering that the rules on quantity and quality both deal with the *process of formation of the subjective element involved in navigation*, it is quite paradoxical to conclude that, while manning provisions are able to cover the evolution brought by MASS technology, otherwise STCW provisions do not. This systematic incoherence highlights, even more, the legal uncertainties characterizing the topic here analyzed.

Moreover, and more importantly, IMO law does not currently provide any rule regarding the training and formation of remote operators. As it has been deeply observed before, these new means of maritime transport are not controlled by

⁴³⁸ SMEELE F., *Switching of Regulatory Requirements: Flag State Exemptions as a Tool to Facilitate Experiments with Highly Automated Vessels and their Operational Implementation*, cit., p. 76-77.

⁴³⁹ MANDRIOLI D., *The International Duty to Assist People in Distress at Sea in the Era of Unmanned Navigation: No Place for People on Board*, cit., p. 93.

⁴⁴⁰ RINGBOM H., *Regulating Autonomous*, cit., p. 157. Again, VEAL R.; TSIMPLIS M.; SERDY A.; NTOVAS A.; QUINN S., *Liability for operations in Unmanned Maritime Vehicles with Differing Levels of Autonomy*, 2016, cit., p. 16.

“traditional seafaring activities”; on the contrary, MASS navigation is mainly performed by remote operators, whose quality level is still unregulated in International Law.

Continuing the analysis, for what concerns the regulation of the circulation of ships provided by the COLREGs, an amendment procedure looks necessary. Indeed, while the principle of good seamanship (rules 2 and 8 of COLREGs) may potentially be able to cover the use of MASS – a clarification would be anyway appropriate – the regulation on look-out activities raises some critical thoughts concerning its inter-temporal dynamicity. The reported reflections about the preparatory works of COLREGs have highlighted that State parties envisaged the drafting of a static norm, not capable to follow the revolution brought by the technology of automation. Therefore, it has been concluded that the use of fully unmanned MASS does not comply with rule 5 of COLREGs, denoting the need for new regulation in this regard.

As far as the legal status of the master and the seafarers are concerned, starting with the former, its “essence” lies in his/her position of command over the activity of navigation, regardless of its geographical location. Since the Law of the Sea does not attribute a static nature to this figure⁴⁴¹, an individual in charge of the ship from shore can be legitimately considered as the master. For these reasons, it seems not to be necessary to amend the existing rules dealing with the master: where the remote operator is able to fulfill his/her decision-making task required by the law, he/she is the master of the ship.

Conversely, the analysis on the international legal status of the seafarer has clearly manifested its normative rigidity. From this side, international rules on safety of navigation define as “seafarer” every sea-worker performing navigation activities *on board the ship*. Once excluded the evolutive nature of the concept of “seafarer”, international norms on the seafarers cannot be applied to remote operators. Therefore, it would be highly recommended that IMO will work in order to draft specific rules dealing with this new working figure⁴⁴².

⁴⁴¹ Partially contrary to this view, see CATSIVELA M., *The Effect of Unmanned Vessels on Canadian Law*, Maritime Safety and Security Law Journal, 2018, p. 56: «Considering [...] that regulatory provisions currently applicable at the domestic and international levels refer to the on board presence of the master or may translate in practice as requiring such presence, it would be preferable to revise the term, making it clear that the person in command and charge of the vessel may operate it remotely provided that the required tasks can be discharged remotely».

⁴⁴² On the same view, see, STEVENS F., *Seaworthiness and Good Seamanship in the Age of Autonomous Vessels*, cit., p. 249.

In this regard, however, it is doubtful whether the Organization would have competence over the training and formation of remote operators because their operative works happen from shore, and so entirely under national sovereignty⁴⁴³. Similarly, IMO never produced hard law about the training and formation of *maritime harbour pilots*, who, such as remote operators, work from shore; more limitedly, it just recommended some general guidelines in this respect⁴⁴⁴. For this reason, an ILO intervention on this matter seems more desirable and realistic⁴⁴⁵.

In any case, since the subjective element of MASS navigation is mainly founded on this new category of sea-workers, the current lack in the regulation of remote operators' involvement in the activity of navigation needs to be filled as soon as possible. This phenomenon appears to be extremely problematic: in the current lack of new specific provisions, indeed, the more relevance is given to remote operators' activities, the less human involvement in the conduction of the activity of navigation is effectively regulated by International Law⁴⁴⁶.

⁴⁴³ MANUEL M.E., BAUMLER R., *The Evolution of Seafarer Education and Training in International Law*, cit., p. 491.

⁴⁴⁴ IMO Resolution A.960(23) on Recommendations on Training and Certification and on Operational Procedures for Maritime Pilots other than Deep-Sea Pilots, December 2003.

⁴⁴⁵ For a deep analysis on this issue, see DAVIES M., *Pilotage of Autonomous and Remotely- Controlled Ships*, in RINGBOM H.; RØSÆG E.; SOLVANG T., (eds.), *Autonomous Ships and the Law*, cit., p.279-294.

⁴⁴⁶ A similar conclusion is supported by KARLIS T., *Maritime Law Issues Related to the Operation of Unmanned Autonomous Cargo Ships*, cit., p. 126: «The international regulatory regime as well as the legal precedents relate seaworthiness with an adequate and competent crew. With the current status of the international maritime law, it is vague whether an unmanned ship can be considered seaworthy in the strict legal sense».

CHAPTER II

THE INTERNATIONAL REGIME OF STATE JURISDICTION OVER NAVIGATION AND ITS APPLICABILITY TO THE USE OF MASS

SUMMARY: **1.** Introduction to the chapter – **2.** Jurisdiction at sea: the legal framework – a) The concept of jurisdiction in Public International Law – b) State jurisdiction over human activities at sea – *i*) A historical introduction on the development and the codification of jurisdiction at sea in the twentieth century – *ii*) The basic principles and criteria codified in UNCLOS III on State jurisdiction: the zonal approach – *iii*) State jurisdiction and objects – **3.** Jurisdiction over the human activity of navigation – a) State jurisdiction over “ships” – *i*) The concept of “ship” in International Law – *ii*) The definition of “ship” for jurisdictional purposes: analysis of the *Saiga* Case – *iii*) *Ad interim* conclusions: “ship” as a unit – b) The allocation of maritime jurisdiction – *i*) The regime of flag State jurisdiction: a theoretical reconstruction – *ii*) Granting the nationality to ships – c) The regulation of jurisdiction over ships: analysis of the hendiadys of the criteria of “flag” and “space” – *i*) Jurisdiction over ships on the high seas – *ii*) Jurisdiction over ships in waters over the continental shelf and in the contiguous zone – *iii*) Jurisdiction over ships in the territorial, archipelagic and internal waters – *iv*) The exercise of jurisdiction over ships without nationality – d) The malfunctioning of State governance at sea: the phenomenon of flags of convenience – **4.** The applicability of the international regime of maritime jurisdiction to MASS navigation – a) A new paradigm for performing navigation: new challenges for the implementation of State governance at sea – b) On the theoretical applicability of UNCLOS rules on State jurisdiction to the use of MASS – *i*) MASS as “ship” from a jurisdictional perspective – *ii*) The possibility to grant State’s nationality to MASS – c) Innovative implications emerging from the application of UNCLOS rules on jurisdiction to the use of MASS – *i*) The allocation of States’ powers over remote operators – *ii*) The allocation of States’ powers over the object MASS and the human component on board – *iii*) The exercise of enforcement jurisdiction over autonomous navigation: towards the “scission” of the unity of the concept of ship? – **5.** Even more convenience for flags of convenience? Some conclusive thoughts.

1. Introduction to the chapter

The previous chapter of this study addressed the impact of the use of MASS on the applicability of the international rules on safety of navigation. Intuitively, this analysis did not exhaust the entire research, which aspires to provide an extended dissertation about the international legal implications arising from the advent of automation technologies in the field of maritime transport. Precisely, the first chapter reported how the use of MASS challenges the international legislation about the ergonomics of navigation, leaving fully unexplored the related issue concerning the regulation of the *State governance at sea* in the “era” of autonomous navigation. Accordingly, the aim of

the present chapter is to deal with this further issue: it is here intended to understand whether and how the existing *international regime of State governance over the human activity of navigation applies to the fast-growing use of MASS*.

As emphasized in scholarship, the history and evolution of the Law of the Sea may be narrated:

«[...] as a search for coherent rules to regulate the projection of state authority over the oceans»¹.

The allocation of sovereign powers over maritime human activities has marked the formation of this legal regime since its origins; the different facets composing the dichotomist tension between the “*Mare liberum*”² and the “*Mare clausum*”³ approaches have characterized every historical period of the Law of the Sea, from the classical age to the contemporary one⁴. With regard to the latter, although the regulation currently in force is based on solid normative grounds (the UNCLOS regime), what has been established almost forty years ago is surely erodible by time and may be unable to adequately face new factual realities⁵. Put differently:

«the jurisdictional balance between different interests and different actors» is constantly «subject to continuous modifications, reflecting the change in maritime activities, *technological developments* and the fluid nature of states’ relationships»⁶.

¹ STEPHENS T.; ROTHWELL D. R., *The LOSC Framework for Maritime Jurisdiction and Enforcement 30 Years on*, International Journal of Marine and Coastal Law, 2012, p. 701-702. On the same advice, see SCOVAZZI T., *Human Rights and Immigration at Sea*, in RUBIO-MARTIN R. (ed.), *Human Rights and Immigration*, Oxford, 2013, p. 213; MCDUGAL M., *The Maintenance of Public Order at Sea and the Nationality of Ships*, American Journal of International Law, 1960, p. 25.

² GROTIUS H., *The Freedom of the Seas*, 1608. For a detailed historical analysis in this regard, see O’CONNELL D. P., *The International Law of the Sea*, cit., p. 1-28.

³ SELDENUS J., *Mare clausum seu de dominio maris libri duo*, 1635.

⁴ DUPUY R.J., *The Sea under National Competence*, in DUPUY R.J.; VIGNES D. (eds.), *A Handbook on the New Law of the Sea*, Vol. I, Dordrecht/Boston, 1991, p. 247: «The sea has always been lashed by two major contrary winds: the wind from the high seas toward the land is the wind of freedom, the wind from the land toward the high seas is the bearer of sovereignties. The law of the sea has always been in the middle between these conflicting forces». With regard to the evolution of International Law of the Sea, among many others, see PAPASTAVRIDIS E., *The Interception of Vessels on the High Seas*, Portland, 2014, p. 18-40; SCOVAZZI T., *The Evolution of International Law of the Sea*, cit.; MCDUGAL M.S.; BURKE W.T., *The Public Order of the Oceans: A contemporary International Law of the Sea*, New Haven, 1987, p. 1-63; CONFORTI B., *Il regime giuridico dei mari*, Napoli, 1957.

⁵ RINGBOM H. (ed.), *Jurisdiction over Ships*, Leiden, 2017, Introduction, p. 1; SHEARER I., *The Limits of Maritime Jurisdiction*, in SCHOFIELD C.; LEE S.; KWON M. (eds.), *The Limits of Maritime Jurisdiction*, Leiden/Boston, 2014, p. 63.

⁶ PAPANICOLOPULU I., *Seafarers as an Agent of Change of the Jurisdictional Balance*, cit., p. 301 (emphasis added). On the same advice, see SCOVAZZI T., *Considerazioni generali in tema di sicurezza*

From this perspective, the striking revolution brought by MASS technology questions the tightness of the existing legal framework regulating States' governance over ships. As noted before, automation is transforming the millennial paradigm of the performance of navigation at sea, challenging its common understanding. Analogously to what was argued in the first chapter⁷, even the exercise of State jurisdictional powers over navigation is potentially challenged by the rise of this technological advancement.

In order to deal with the presented issue, chapter II is organized into five principal sections.

The next one (2) will provide a general overview of the legal framework regulating the allocation of State jurisdiction at sea. Following the methodology of work adopted by other scholars who have addressed the topic before⁸, this digression will start from a theoretical reconstruction of the concept of jurisdiction in Public International Law. Once clarified its main (and blurred) facets, it will be possible to focus the attention on the regulation of State jurisdiction at sea; in this regard, the study of the normative framework set by UNCLOS will cover a central role within the proposed analysis.

Subsequently, the following section (3) will go into the description of the international norms dealing with the allocation of State jurisdiction over the human activity of navigation. As it will be better specified below, the Law of the Sea typically distributes State jurisdiction following a *zonal approach*⁹, taking into account the location and the *objects* utilized for the activities conducted at sea¹⁰. Broadly speaking, space and objects are the basic elements for reconstructing State jurisdiction over a certain human behaviour¹¹. Therefore, as far as navigation is concerned, the *ship* is the factual link between the performance of navigation and the exercise of State

della navigazione marittima, in SIDI, *Il diritto internazionale del mare. Fra usi antichi e nuove forme di utilizzazione*, Napoli, 2001, p. 64-65: «Il fatto stesso che le attività volte in mare sono molto cambiate, o sono molto cambiati i modi in cui esse sono esercitate, porta alla conseguenza che anche le norme che regolano tali attività richiedono di venire corrispondentemente cambiate».

⁷ See section 2 of the introduction to the thesis.

⁸ See PAPANICOLOPULU I., *International Law and the Protection of People at Sea*, cit., p. 111-121; GAVOUNELI M., *Functional Jurisdiction in the Law of the Sea*, cit.

⁹ TANAKA Y., *The International Law of the Sea*, cit., p. 4; O'CONNELL D. P., *The International Law of the Sea*, cit., p. 733; TREVES T., *Law of the Sea*, cit.

¹⁰ PAPANICOLOPULU I., *Seafarers as an Agent of Change of the Jurisdictional Balance*, cit., p. 301.

¹¹ In this regard, it must be remembered the third basic element founding the field of State jurisdiction at sea, the *functional criterion*, which completes the spatial criterion related to the objects at sea. See GAVOUNELI M., *Functional Jurisdiction in the Law of the Sea*, cit., p. 10; CHURCHILL R. R.; LOWE A. V., *The Law of the Sea*, cit., p. 1.

jurisdiction¹². For this reason, the third section of the chapter will start from the reconstruction of the legal concept of “ship” for jurisdictional purposes¹³, simplifying the succeeding positive analysis of the norms regulating the law of maritime jurisdiction. In so doing, particular attention will be paid to the renowned dysfunctions characterizing State governance at sea in the last decades: the well-known phenomena of *flags of convenience* and of open registries are negatively marking the implementation of the observed provisions.

Once concluded the analysis from a *de iure condito* perspective, the fourth section (4) will turn to the central question of the chapter, *i.e.* whether and how international rules on State jurisdiction over ships apply to the use of MASS. As noted above, from an ergonomic perspective, these new means of maritime transport largely differ from traditional vessels. Indeed, since the use of MASS is (fully or partially) performed from shore, autonomous navigation may be conceived as a multifaceted activity: albeit it typically produces its effects at sea, it is (mainly) performed on land. In other words, the subjective and objective elements of navigation¹⁴ are no longer contextually located in the same place. In this respect, MASS do not possess one of the most peculiar characteristics of traditional manned ships: they are not necessarily

«vehicle[s] in which human activity occurs»¹⁵.

This peculiarity falls within what prof. Mann defined as:

«the complications of modern life», which «are responsible for the steadily increasing reluctance to “localize” facts, events or relationships»¹⁶.

¹² MCKENZIE S., *When is a Ship a Ship? Use by State Armed Forces of Uncrewed Maritime Vehicles and the United Nations Convention on the Law Of The Sea*, cit., p. 2.

¹³ O’CONNELL D. P., *The International Law of the Sea*, cit., p. 734: «One of the essential ingredients, then, of a doctrine of maritime jurisdiction is the legal character attributable to ships».

¹⁴ See section 2(b) of the first chapter of this research.

¹⁵ O’CONNELL D. P., *The International Law of the Sea*, cit., p. 735 (emphasis added).

¹⁶ MANN F. A., *The Doctrine of Jurisdiction in International Law*, Recueil des Cours, 1964, Vol. 1, p. 36. This topic is in-depth analyzed by KALHER M.; WALTER B. (eds.), *Territoriality and Conflict in an Era of Globalization*, New York, 2006. On the same view, see also IACOB O., *Principles Regarding State Jurisdiction in International Law*, International Conference “Challenges of the Knowledge Society”, 2019, p. 604: «the advances in technology and communication, that create a more and more interconnected world, could lead to a shift in the way the exercise of power is perceived and, subsequently, to a shift in the law of jurisdiction». This specific topic falls into a more generic issue, namely the so-called “deterritorialization of International Law”. In this regard, see ARCARI M., *En guise d’introduction: le droit international entre “déterritorialisation” et actualité de l’assise territoriale*, in

This factual innovation stimulates delicate issues about the functioning of the *de iure condito* regime of the allocation of maritime jurisdiction, which, as anticipated, is mainly based on a zonal approach.

Following what has been already anticipated, section 4(b) will be dedicated to answering the question of whether MASS may be intended as “ships” for jurisdictional purposes, in order to understand if the international rules on maritime jurisdiction can potentially apply to the latter. Subsequently, section 4(c) will dwell on further legal implications arising from the (eventual) operability of such rules to the use of MASS. More in detail, particular attention will be paid to the emergence of new (potential) jurisdictional conflicts between the exercise of States’ powers over the maritime activities conducted from shore: as it will be later observed, the process of “dislocation of navigation” may give rise to many jurisdictional claims, some of which are linked to the objective element (MASS), while others to the subjective one (remote operators).

Conclusively, the last section (5) will report the principal conclusions reached through the analysis carried out in the entire chapter. In this regard, particular attention will be paid to the potential escalation of the negative consequences brought by the renowned phenomenon of flags of convenience in the era of autonomous navigation: in few words, the technology of remote control looks able to further dilute the strength of the genuine link occurring between the flag State and the MASS. Consequently, the last pages of this chapter will discuss how this new “paradigm” for performing navigation could render the practice of flags of convenience even more detrimental to the global task of implementing an effective regime of maritime State governance at sea.

ARCARI M.; BLAMOND L.; MILLET-DAVALLE A.S. (eds.), *La gestion des espaces en droit international et européen*, Napoli, 2016, p. 3-18; MILANO E., *The Deterritorialization of International Law: Setting the Context*, in DI STEFANO A. (ed.), *A Lackland Law? Territory, Effectiveness and Jurisdiction in International and EU Law*, Torino, 2015, p. 53-69. Then, with specific regard to technology, de-territorialization and the Law of the Sea, see JOHNSTON D., *Law, Technology and the Sea*, cit., p. 472: «In the sea, as in other unoccupied spaces, the logic of emerging technology requires a fresh approach to the uses of law in providing solutions and concepts of order. For almost forty years the old “status zones” of the sea and the resulting “status law” have seemed too much rigid to serve as a proper legal framework for new and expanding uses of the sea. As various kind of institutions develop throughout the world to accommodate exclusive and inclusive interests in these uses, it becomes increasingly more difficult to justify the notion of territoriality in the sea. If territorial sea does not in time “wither away”, it can only mean that the technological order of the sea has finally prevailed».

2. Jurisdiction at sea: the legal framework

a) The concept of jurisdiction in Public International Law

In Public International Law, the generic recourse to the term “jurisdiction” may generate some confusion: the absence of a commonly agreed definition shows that this word may assume different and conflicting meanings¹⁷. Indeed, “jurisdiction” can be (at least) utilized to describe both the authority of an international court to solve a dispute and/or the «State’s right to exercise certain of its powers»¹⁸; intuitively, the present digression will address the second of the reported meanings. From this limited perspective, the next pages will provide a general overview about the concept of jurisdiction within the international legal system.

Notoriously, the post-Westphalian order of the international community is based on the principle of *sovereign equality*¹⁹, according to which:

«International Law governs relationships between *independent States*»²⁰.

The performance and the protection of the independence of consociates characterize the International Law as a legal system. From one side, States can exercise their

¹⁷ NOLL G., *Theorizing Jurisdiction*, in ORFORD A.; HOFFMANN F. (eds.), *The Oxford Handbook of the Theory of International Law*, Oxford, 2016, p. 600-622.

¹⁸ PROELSS A.; HOFMANN T., *Law of the Sea and Transnational Organized Crime*, in P. HAUCK; S. PETERKE (eds.), *International Law and Transnational Organized Crime*, Oxford, 2016, p. 423; MANN F. A., *The Doctrine of Jurisdiction in International Law*, cit., p. 11.

¹⁹ *Islands of Palmas Case* (Netherlands v. USA), (PCA), Arbitral Awards, 4 April 1928, p. 838: «Sovereignty in the relations between states signifies independence. Independence in regard to a portion of the globe is the right to exercise therein, to the exclusion of any other state, the functions of a state. The development of the national organization of states during the last few centuries and, as a corollary, the development of international law, have established this principle of the exclusive competence of the state in regard to its own territory in such a way as to make it the point of departure in settling most questions that concern international relations». Again, see article 4 of the Montevideo Convention on the Rights and Duties of States, 1933: «States are judicially equal, enjoy the same rights, and have equal capacity in their exercise. The rights of each one do not depend upon the power which it possesses to assure its exercise, but upon the simple fact of its existence as a person under international law».

²⁰ *The Case of the S.S. “Lotus”* (France v. Turkey), Judgement, P.C.I.J. Reports, 1927, p. 18 (emphasis added). In this regard, see LOWE V., *International Law*, New York, 2007, p. 1-29. Again, for an outstanding analysis on the liberal nature of contemporary configuration of the international legal system, see KOSKENNIEMI M., *Form Apology to Utopia*, cit., p. 71-89.

sovereignty free from external restrictions²¹; from the other side, their conduct shall not compress the independence of the other consociates²². The delicate equilibrium between these two sides of the same coin is reached through the settlement of a normative framework aimed at regulating, delimiting and allocating the exercise of State sovereign powers²³: precisely, the international law of jurisdiction is that body of rules entitling States to «give shape to [their] *imperium*»²⁴ over physical persons, things and activities²⁵. Following this reasoning, the concept of “jurisdiction” is closely related to the exercise of State sovereignty²⁶. In few words, it is:

²¹ *The Case of the S.S. “Lotus”*, cit., p. 18: «Restrictions upon the independence of States cannot therefore be presumed». For an in-depth analysis on the so-called “Lotus principle”, see SPIERMANN O., *Lotus and the Double Structure of International Legal Argument*, in SANDS P.; BOISSON DE CHAZOURNES L. (eds.), *International Law, the International Court of Justice and Nuclear Weapons*, London, 1999, p. 131-151; KOSKENNIEMI M., *The Politics of International Law*, European Journal of International Law, 1990, in KOSKENNIEMI M. (ed.), *The Politics of International Law*, Oxford/Portland, 2011, p. 49-50.

²² FIORE P., *Trattato di diritto internazionale pubblico*, Torino, 1879, p. 390: «Il complesso di questi diritti costituisce quello che si addimanda diritto di dominio e di giurisdizione internazionale, e ad esso è correlativo il dovere per parte di tutti gli Stati di astenersi da qualunque fatto che possa direttamente o indirettamente equivalere come manifestazione della *publica potestas*, dell’*imperium*, del *dominium eminens*». The customary principle of non-intervention prohibits State from interfering in the free exercise of sovereignty of other States. Such rule has been declared by the art. 8 of the Montevideo Convention on the Rights and Duties of States and, more recently, by principle I of the Declaration on Principles of International Law concerning Friendly Relations and Co-operation among States in Accordance with the Charter of the United Nations (UNGA Resolution 2625, 24 October 1970). As known, this declaration (and its content) has been in depth analyzed by the ICJ in the *Military and Paramilitary Activities in and against Nicaragua* (Nicaragua v. United States of America), Judgement, I.C.J. Reports, 1986, paras. 202-209.

²³ NOLL G., *Theorizing Jurisdiction*, cit., p. 603: «As states are equally sovereign, they appear to form an irreducible plurality. For that reason, the story of jurisdiction needs to be told in the plural form of ‘entitlements’». Again, see LOWE W., *Jurisdiction*, in EVANS M.D. (ed.), *International Law*, Oxford, 2006, p. 336: «The legal rules and principles governing jurisdiction have a fundamental importance in international relations, because they are concerned with the allocation between States, and other entities such as the European Union, of competence to regulate daily life – that is, the competence to secure the differences that make each State a distinct society». Then, see HIGGINS R., *Problems and Process. International Law and How We Use It*, cit., p. 146: «The law of jurisdiction is about *entitlements* to act». More anciently, this consideration has been outlined by ROUSSEAU C., *Principes de droit international public*, Recueil des Cours, Vol. I, 1958, p. 373.

²⁴ RYNGAERT C., *Jurisdiction in International Law*, cit., p. 5.

²⁵ NOLL G., *Theorizing Jurisdiction*, cit., p. 601; IACOB O., *Principles Regarding State Jurisdiction in International Law*, cit., p. 598; OXMAN B., *Jurisdiction of States*, Max Planck Encyclopedia of Public International Law, 2007; MCGOLDRICK D., *Extraterritorial Application of the International Covenant on Civil and Political Rights*, in COOMANS F.; KAMMINGA, M. T. (eds.), *Extraterritorial Application of Human Rights Treaties*, Antwerp, 2004, p. 46.

²⁶ *The Case of the S.S. “Lotus”* cit., p. 19. In ancient times, the philosopher Jean Bodin affirmed that: «Sous cette même puissance de donner et casser la loi, sont compris tous les autres droits et marques de souveraineté: de sorte qu’à parler promptement on peut dire qu’il n’y a que cette seule marque de souveraineté, attend que tous les autres droits sont comprise n celui-là, comme décerner la guerre, ou faire la paix, connaitre en dernier ressort des jugements de tous magistrats, instituer et destituer les plus grand officiers, imposer ou exempter les sujets de charges et subsides, octroyer grâces et dispenses contre la rigueur des lois, hausser ou baisser le titre, valeur et pied des monnaies, faire jurer les sujets et hommes liges de garder fidélité sans exception à celui auquel est du le serment, qui sont les vraies marques de

«an aspect or an ingredient or a consequence of sovereignty»²⁷.

The blurred and generic nature of the reported definitions allows to better clarify one fundamental feature of the concept of jurisdiction in International Law: since it generally deals with the exercise of State sovereignty – whose conceptualization largely varies depending on the specific field of law and on the existing circumstances²⁸ – State jurisdiction manifests itself in many shapes depending on the specific context taken into account. Precisely, as well as sovereignty, the concept of jurisdiction has an *abstract nature*, which imposes to analyze it by taking into consideration the concrete declinations it assumes within the specific legal context of reference²⁹.

According to renowned authors, such a process of “compartmentalization”³⁰ of the law of jurisdiction may be reconstructed following two parallel classifications³¹.

First, jurisdiction may be distinguished according to the *type*³² of sovereign powers exercised by States (1). From this perspective, it is quite common to read and hear that

souveraineté, comprises sous la puissance de donner la loi à tous en général, et à chacun en particulier, et ne la recevoir que le Dieu» (Jean Bodin, *Les six livres de la République*, 1576, I, X, p. 163. This quotation has been reported by CANNIZZARO E., *La sovranità oltre lo Stato*, cit.). More recently, the same conclusion is stated by the ILC, *Extra Territorial Jurisdiction*, Yearbook of the International Law Commission, Vol. II, Part. Two, Annex V, 2006, p. 22, para. 5: «The jurisdiction of a State may be understood as generally referring to the sovereign power of a authority of s State».

²⁷ MANN F. A., *The Doctrine of International Jurisdiction Revisited after Twenty Years*, Recueil des Cours, Vol. III, 1984, p. 20. Again, it is quite suggestive the reflection provided by BEALE J., *The Jurisdiction of a Sovereign State*, 36 Harvard Law Review, 1923, p. 241: «The creation of a legal right is an act of the law; and the law can act only in accordance with itself. The power of a sovereign, therefore, to affect legal rights depends upon the law; and upon the law must be based all sovereign jurisdiction».

²⁸ VITUCCI M., *Sovranità e amministrazioni territoriali*, Napoli, 2012, p. XII: «La sovranità definisce il rapporto tra potere dello Stato, territorio e cittadini e la definizione di essa non può che variare in funzione della concezione dominante del rapporto tra questi termini». Again, see KOSKENNIEMI M., *FormApology to Utopia: The Structure of International Legal Argument*, cit., p. 242: «The expression “sovereignty” or any definition thereof cannot have such fixed content as to be “automatically” applicable».

²⁹ RYNGAERT C., *Jurisdiction in International Law*, cit., p. 1. According to the author, this is the reason why, although in the last years many studies have been conducted with regard to specific facets of jurisdiction, in the twenty-first century it still missing relevant research about the doctrine of jurisdiction as a whole.

³⁰ Ibid.

³¹ PAPANICOLOPULU I., *International Law and the Protection of People at Sea*, cit., p. 115-116; RYNGAERT C., *Jurisdiction in International Law*, cit.; LOWE V., *International Law*, cit., p. 170-184; GAVOUNELI M., *Functional Jurisdiction in the Law of the Sea*, cit., p. 5; JENNINGS R.; WATTS A. (eds.), *Oppenheim’s International Law*, vol. I: *Peace, Introduction*, 9th edition, Longman, 1992, p. 456.

³² PAPANICOLOPULU I., *International Law and the Protection of People at Sea*, cit., p. 128.

jurisdiction may be divided in *prescriptive (or legislative) jurisdiction* and in *enforcement jurisdiction*³³. Regarding the former:

«the doctrine of legislative jurisdiction answers the question whether and in what circumstances a State has the *right of regulation*»³⁴.

Put differently, it defines the State «power to prescribe laws»³⁵. Specularly, enforcement jurisdiction entails:

«the power to take executive action in pursuance of or consequent on the making of decisions or rules»³⁶.

Above and beyond this distinction, international lawyers often refer to a third category, namely *adjudicative (or judicial) jurisdiction*, here intended as:

«the power of a State to decide, through its judges, on the interpretation and application of legal rules, including those concerning the consequences of unlawful action»³⁷.

The nature of adjudicative jurisdiction is highly debated, since it is not pacific if it falls within prescriptive³⁸ or enforcement jurisdiction or, alternatively, if it may be seen

³³ In this regard, it must be stressed that this is not the only method of classification that has been formulated by scholars. For example, in Cheng's view, the concept of jurisdiction may be divided in "*Jurisdiction*", which «denotes the normative element of jurisdiction and represents the power of a State», and "*Jurisdiction*", consisting in «the formal element of State jurisdiction and denotes the power of a State [...] physically to perform the act of actually making, concretizing of enforcing laws». For more details, see CHENG B., *The Extra-Territorial Application of International Law*, 18 *Current Legal Problems*, 1965, p. 136. Again, in Jessup's view, "jurisdiction" limitedly refers to «the power of courts to adjudicate». In the opposite position, "control" is «the power of administrative and executive officers to govern the actions of individual or things». In between of the two, «Acts of legislative branch of the government may confer either the power of jurisdiction or the power of control» (JESSUP P., *The Law of Territorial Waters and Maritime Jurisdiction*, cit., p. xxxiii). In any case, the present work will follow the traditional classification of State powers in prescriptive and enforcing jurisdiction.

³⁴ MANN F. A., *The Doctrine of Jurisdiction in International Law*, cit., p. 16 (emphasis added).

³⁵ LOWE V., *International Law*, cit., p. 171. Historically, the PCIJ defined the exercise of prescriptive jurisdiction as «one of the most obvious forms of the exercise of sovereign power» (*Legal Status of Eastern Greenland* (Denmark v. Norway), Judgement, P.C.I.J. Reports, 1933, para. 48).

³⁶ BROWNIE I., *Principles of Public International Law*, Oxford, 2003, p. 296.

³⁷ PAPANICOLOPULU I., *International Law and the Protection of People at Sea*, cit., p. 115.

³⁸ SIMMA B.; MULLER A., *Exercise and Limits of Jurisdiction*, in CRAWFORD J.; KOSKENNIEMI M. (eds.), *The Cambridge Companion to International Law*, Cambridge, 2012. Recently, this position has been adopted by ITLOS in the *M/V "Norstar"* (Panama v. Italy) Judgment, ITLOS Reports, 2019. On that occasion, the tribunal concluded that Italy «by extending its criminal and customs laws to the high seas, by issuing the Decree of Seizure, and by requesting the Spanish authorities to execute it, breached

as a separate manifestation of State power³⁹. For the purposes of this research, adjudicative jurisdiction is considered as a sub-species of prescriptive jurisdiction.

Second, State jurisdiction may be classified on the basis of which connection (or *link*⁴⁰) justifies the exercise of the State authority over a certain activity (2).

In this regard, the most basic criterion is established by the *principle of territoriality*, according to which a State may exercise its jurisdiction over the activities that are performed within its territory⁴¹. Beyond territorial jurisdiction, the attribution of State powers may follow the *nationality (or personal) principle*⁴², which allocates jurisdiction to States with regard to the activities conducted by their nationals⁴³. Furthermore, the exercise of State powers may be determined «by reference to the national interest injured by the offence»⁴⁴: in these circumstances, it is said that jurisdiction follows the *protective principle*⁴⁵. Conclusively, in the case of (specific) offences of serious concern to the international community⁴⁶, International Law allows

the freedom of navigation which Panama, as the flag State of the M/V Norstar, enjoyed under that provision [art. 87 UNCLOS]» (par. 226; emphasis added).

³⁹ This position has been adopted in the ILC, *Extra Territorial Jurisdiction*, cit., p. 229.

⁴⁰ With regard to this term, professor Mann defines it «*genuine link*» (emphasis added), namely «the relevant point of contact [...] as indicating the State which has a close, rather than the closest, connection with the facts» (see MANN F. A., *The Doctrine of Jurisdiction in International Law*, cit., p. 46). The issue concerning the “genuine link” in the Law of the Sea is further analyzed in section 3(b)(ii) of this chapter.

⁴¹ Among many others, in this regard see NINO M., *The evolution of the Concept of Territorial Sovereignty. From the Traditional Westphalian System to the State-Peoples Binomial*, La Comunità Internazionale, 2020, p. 561-591; CANNIZZARO E., *La sovranità oltre lo Stato*, Bologna, 2020, p. 30; RYNGAERT C., *Jurisdiction in International Law*, cit., p. 42; MANN F. A., *The Doctrine of Jurisdiction in International Law*, p. 24-36. More anciently, see MONACO R., *L'ordinamento internazionale in rapporto all'ordinamento statale*, Torino, 1932, p. 120 ss.

⁴² This principle is also called “*personality principle*”. See PAPANICOLOPULU I., *International Law and the Protection of People at Sea*, cit., p. 115; CHENG B., *The Extra-Territorial Application of International Law*, cit., p. 136.

⁴³ A well-known declination of the nationality principle is the “*passive personality principle*”, according to which a State may exercise jurisdiction over individuals for acts committed abroad when the victim is a national of that State. A renowned case concerning the application of this principle is enshrined in the *Lotus case*, in which the PCIJ was called to decide whether Turkey was empowered to exercise jurisdiction over the crew of the French vessel S.S. Lotus, since these seafarers were involved in the shipwreck of a Turkish vessel occurred in the High Seas, which caused the death of eight Turkish nationals (see *The Case of the S.S. “Lotus”* cit.).

⁴⁴ *Introductory Comment to the Harvard Research Draft Convention on Jurisdiction with Respect to Crime*, American Journal of International Law, 1935, Spec. Suppl., p. 443.

⁴⁵ IACOB O., *Principles Regarding State Jurisdiction in International Law*, cit., p. 601: «According to the protective principle, a state can exercise its jurisdiction over acts committed abroad by their nationals or by foreign citizens, if those acts threaten the interests, security or functioning of the respective state». In this sense, see also BENNETT A., *The Sinking Feeling: Stateless Ships, Universal Jurisdiction, and the Drug trafficking Vessels Interdiction Act*, Yale Journal of International Law, 2012, p. 437.

⁴⁶ As known, the most renowned example of the exercise of universal jurisdiction is with regard to the international crime of piracy. In this respect, art. 105 of UNCLOS states that: «On the high seas, or in

every State to exercise *universal jurisdiction*. This last category is characterized by the absence of any specific jurisdictional nexus bonding that State and the activities⁴⁷.

According to the reported classifications, it emerges that the concept of jurisdiction declines in many shapes and forms⁴⁸. In addition, its concrete manifestations further depend on the specific field of the international regime taken into account. Indeed:

«as an abstract concept, it [jurisdiction] is in need of application and elaboration in particular areas of substantive law»⁴⁹.

For this reason, once provided a general and introductory overview about the basic features of the jurisdiction in International Law, the present analysis will continue by limitedly observing how such an abstract concept manifests itself within the Law of the Sea, in order to specifically outline how in the contemporary age States shall exercise their authority over maritime human activities.

b) State jurisdiction over human activities conducted at sea

i) A historical introduction on the development and the codification of jurisdiction at sea in the twentieth century

Since the extension and the inhospitality of the oceans make them free from any pretense of exclusive sovereignty promoted by one single State⁵⁰, the marine domain has always been considered:

any other place outside the jurisdiction of any State, *every State* may seize a pirate ship or aircraft, or a ship or aircraft taken by piracy and under the control of pirates, and arrest the persons and seize the property on board. The courts of the State which carried out the seizure may decide upon the penalties to be imposed, and may also determine the action to be taken with regard to the ships, aircraft or property, subject to the rights of third parties acting in good faith» (emphasis added). For an in-depth analysis, see On this specific regard, among many others, see FARNELLI G.M., *Contrasto e repressione della violenza marittima nel diritto internazionale contemporaneo*, Napoli, 2015, p. 123-142.

⁴⁷ O'KEEFE R., *Universal Jurisdiction Clarifying the Basic Concept*, Journal of International Criminal Justice, vol. 2, 2004, p. 745; *Arrest Warrant of 11 April 2000* (Democratic Republic of the Congo v. Belgium), Judgment, I.C.J. Reports, 2002, Separate Opinion of President Guillaume.

⁴⁸ GAVOUNELI M., *Functional Jurisdiction in the Law of the Sea*, cit., p. 5.

⁴⁹ RYNGAERT C., *Jurisdiction in International Law*, cit., p. 1-2.

⁵⁰ As authoritatively affirmed by Grotius: «[...] the sea is common to all, because it is so limitless that it cannot become a possession of anyone, and because it is adapted for the use of all [...]» (GROTIUS H., *The Freedom of the Seas*, Chapter V, 1608).

«the arena wherein states have daily had to regulate their conduct by reference to rules other than of their own making»⁵¹.

From this perspective, the rules on State jurisdiction are the bearing structure of the entire international legal system regulating the activities performed at sea⁵²; as pointed out by prof. Tanaka, the primary function of the legal regime of the Law of the Sea is the «[...] distribution of jurisdiction of States»⁵³.

As anticipated, the configuration of the jurisdictional balance at sea has passed through several phases, reflecting the economic and sociological factors characterizing different historical periods⁵⁴. With reference to the contemporary age, the most important steps for the codification and progressive development of the law of maritime jurisdiction were the three *United Nations Conferences on the Law of the Sea*, which occurred in 1958 (UNCLOS I), 1960 (UNCLOS II) and from 1973 to 1982 (UNCLOS III)⁵⁵.

As far as UNCLOS I is concerned, its negotiation was based on the preliminary efforts of the ILC in providing a solid background on the existing configuration of the customary law of the sea at those times⁵⁶. This doctrinal work facilitated the drafting and the conclusion of four international treaties: the Convention on the Territorial Sea

⁵¹ O'CONNELL D. P., *The International Law of the Sea*, cit., p. 29. From a more realistic perspective, see the definition of "the Law of the Sea" given by MCDUGAL M., *The Hydrogen Bomb Tests and the International Law of the Sea*, *American Journal of International Law*, 1955, p. 356-357: «the international law of the sea is not a mere static body of rules but is rather a whole decision-making process, a public order which includes a structure of authorized decision-makers as well as a body of highly flexible, inherited prescriptions. It is, in other words, a process of continuous interaction, of continuous demand and response, in which the decision-makers of particular nation states unilaterally put forward claims of the most diverse and conflicting character to the use of the world's seas, and in which other decision-makers, external to the demanding state and including both national and international officials, weigh and appraise these competing claims in terms of the interests of the world community and of the rival claimants, and ultimately accept or reject them. As such a process, it is a living, growing law, grounded in the practices and sanctioning expectations of nation-state officials, and changing as their demands and expectations are changed by the exigencies of new interests and technology and by other continually evolving conditions in the world arena».

⁵² PAPANICOLOPULU I., *International Law and the Protection of People at Sea*, cit., p. 81-82.

⁵³ TANAKA Y., *The International Law of the Sea*, cit., p. 4. On the same view, see GALLAGHER A.; DAVID F., *The International Law of Migrant Smuggling*, Cambridge, 2014, p. 8.

⁵⁴ See note 6 of the present chapter.

⁵⁵ For an in-depth analysis on the process of codification of customary rules of International Law of the Sea through the UNCLOS conferences, see TREVES T., *Codification du droit international et pratique des Etats dans le droit de la mer*, cit.

⁵⁶ ILC, *Articles Concerning the Law of the Sea with Commentaries*, 1956 (Special Rapporteur professor J.P.A. François).

and the Contiguous Zone, the Convention on the High Seas, the Convention on Fishing and Conservation of the Living Resources of the High Seas and the Convention on the Continental Shelf⁵⁷.

The outstanding success of UNCLOS I was to set up a jurisdictional balance based on a *zonal approach*⁵⁸. From a legal perspective, the oceans were divided into five different spaces characterized by different jurisdictional regimes: the internal waters, the territorial sea, the contiguous zone, the high seas and the continental shelf.

Beyond these relevant results, however, UNCLOS I left unsolved the pivotal questions concerning the breadth for the territorial sea and the extent of coastal State fisheries jurisdiction⁵⁹. Consequently, a second conference was organized in 1960 (UNCLOS II), with the aim to conclude what remained open from the previous process of negotiation; however, UNCLOS II failed to achieve the intended results⁶⁰. Only twenty-two years later, in 1982, these issues were settled through the conclusion of the UNCLOS Convention, the so-called «Constitution of the Oceans»⁶¹.

Notoriously, the negotiation of UNCLOS III found its origins in the Sea Bed Committee, established by the UN General Assembly in 1967, with the aim to analyze the emerging question brought by the Maltese ambassador Arvid Pardo concerning the exploration and exploitation of the mineral resources lying in the deep seabed beyond national jurisdiction⁶². Furthermore, the growing concern about the issues of the over-fishing and the spread of marine pollution⁶³ pushed even more the international community to embark on a new and more ambitious review of the Law of the Sea through a diplomatic conference⁶⁴, which started in 1973 and ended nine years later.

As it has been previously anticipated, the contemporary configuration of the jurisdictional balance at sea is still based on the provisions set by UNCLOS. In other words:

⁵⁷ See note 121 of the first chapter of this research.

⁵⁸ GAVOUNELI M., *Functional Jurisdiction in the Law of the Sea*, cit., p. 2.

⁵⁹ CHURCHILL R. R.; LOWE A. V., *The Law of the Sea*, cit., p. 15.

⁶⁰ For more information in this respect, see NORDQUIST M.; NANDAN S.; ROSENNE S., *United Nations Convention on the Law of the Sea 1982, Commentary*, cit., p. XXV-XXIX.

⁶¹ See note 122 of the previous chapter.

⁶² UN General Assembly, Request for Inclusion of a Supplementary Item in the Agenda of the Twenty-Second Session (Malta), 18 August 1967, Agenda Item 92, 1.

⁶³ CHURCHILL R. R.; LOWE A. V., *The Law of the Sea*, cit., p. 16.

⁶⁴ The third UN Conference on the Law of the Sea has been officially established by the UN General Assembly Resolution 2570, raised on 17 December 1970.

«[...] in place of a list of do's and don'ts it [UNCLOS] establishes a framework for delimiting sovereign powers and allocating jurisdictions – assuming that the substantive problems of the uses of the sea can be best dealt with through allocating decision-power elsewhere, into context and usually by reference to 'equitable principles'»⁶⁵.

Accordingly, the next pages will report the cardinal principles governing the UNCLOS allocation of State jurisdiction over maritime human activities.

ii) The basic principles and criteria codified in UNCLOS on State jurisdiction: the zonal approach

Although authoritative scholars have argued that the legal framework posed by UNCLOS lacks in providing a complete and «coherent theory of jurisdiction»⁶⁶, the basic approach adopted for the allocation of State jurisdiction outlined by the Convention looks generally based on the *localization of the objects* utilized for performing maritime human activities. Put differently, the current configuration of the Law of the Sea mainly allocates jurisdiction by observing in which portion of the oceans the objects are placed⁶⁷; from this perspective, *space and objects are the principal elements for defining and delimiting the exercise of State authority in the marine domain*⁶⁸.

⁶⁵ KOSKENNIEMI M., *The Politics of International Law*, cit., p. 59.

⁶⁶ O'CONNELL D. P., *The International Law of the Sea*, cit., p. 733. On the same view, see TREVES T., *Law of the Sea*, cit. Again, it is of outstanding clarity what expressed by GREIB R.; TAMS C., *Non-Flag States as Guardians of the Maritime Order: Creeping Jurisdiction of a Different Kind?*, in RINGBOM H. (ed.), *Jurisdiction over Ships*, Leiden, 2017, p. 21: «The 'traditional regime' of jurisdiction at sea is a vague concept used here as a term of convenience seeking to describe the mélange of jurisdictional provisions set out in, or sanctioned by, the 182 Law of the Sea Convention. As this description suggests, it denotes no clear-cut code of jurisdictional provisions, but rather a range of principles, rules and exceptions that reflect competing perspectives on maritime governance, as they emerged in the second half of the 20th century». Again, see SHEARER I., *The Limits of Maritime Jurisdiction*, cit., p. 63.

⁶⁷ PAPANICOLOPULU I., *Seafarers as an Agent of Change of the Jurisdictional Balance*, cit., p. 301.

⁶⁸ For sake of completeness, then, it must be added that even «*functionality* is [...] a constitutive element of the jurisdiction of States at sea» (PAPANICOLOPULU I., *A Missing Part of the Law of the Sea Convention: Addressing Issues of State Jurisdiction over Persons at Sea*, in SCHOFIELD C.; LEE S.; KWON M. (eds.), *The Limits of Maritime Jurisdiction*, cit., p. 392). For a detailed analysis of the element of functionality in the repartition of jurisdictional rights at sea, see GAVOUNELI M., *Functional Jurisdiction in the Law of the Sea*, cit. (emphasis added). In the author's view, however, this last criterion declines itself within the regulation of the legal status attributed to different marine spaces. To more in this regard, see section 3 of this chapter.

As far as the first-mentioned element is concerned (*space*), the UNCLOS regime “fragments” the physical unity of the oceans into many jurisdictional zones⁶⁹. Through the so-called *zonal approach*⁷⁰:

«the ‘unlimited expanse’ of Grotius has been converted into tidy stripes of jurisdiction, often vying for the same territory»⁷¹.

Precisely, UNCLOS configures six types of marine water zones and two types of underwater spaces, which can be distinguished on the basis of the extension of the jurisdictional powers⁷² granted to the *coastal States*⁷³. With regard to marine spaces *under national jurisdiction*, they are: the internal waters, the territorial sea, the archipelagic waters, the contiguous zone, the continental shelf and the exclusive economic zone. Conversely, the high seas and the Area are known as the marine spaces *beyond national jurisdiction*⁷⁴.

Starting with the first-mentioned marine zone, *internal waters* are:

«waters on the landward side of the baseline of the territorial sea»⁷⁵.

⁶⁹ As observed by TREVES T., *Law of the Sea*, cit.: «The preference granted to this approach is due to the importance given to the claims of coastal States and to the need to adopt nuanced solutions necessary to reconcile these claims with the interests of other States and of the International community as a whole».

⁷⁰ See note 9 of the present chapter.

⁷¹ GAVOUNELI M., *Functional Jurisdiction in the Law of the Sea*, cit., p. 2.

⁷² The scheme of the division of the oceans in many jurisdictional zones differing one from each other depending on the exercise of sovereign powers of coastal States is a declination of the customary principle “*land dominates the sea*”, according to which maritime zones «are legally both an emanation from and an automatic adjunct of the territorial sovereignty of the coastal State» (*Aegean Sea Continental Shelf*, cit., para. 86). This principle has been recognized by the ICJ on several occasions (see *North Sea Continental Shelf* (Federal Republic of Germany v Denmark), Judgement, I.C.J. Reports, 1969, para. 96; *Maritime Delimitation in the Area between Greenland and Jan Mayen* (Denmark v Norway), Judgement, I.C.J. Reports, 1993, para. 80). In scholarship, among others, see OXMAN B., *The Territorial Temptation: a Siren Song at Sea*, *American Journal of International Law*, 2006, p. 830-851; PAPANICOLOPULU I., *The Land Dominates the Sea (Dominates the Land Dominates the Sea)*, *QIL*, Zoom-in 47, 2018, p. 39-48.

⁷³ The locution “coastal State” is not defined by the UNCLOS. For the purposes of this work, with this term, it is here intended: «the state having sovereignty, sovereign rights or jurisdiction in certain maritime areas adjacent to its coasts» (CHURCHILL R., *Under-Utilized Coastal State Jurisdiction: Causes and Consequences*, in RINGBOM H. (ed.), *Jurisdiction over Ships*, Leiden, 2017, p. 278).

⁷⁴ Such classification is supported by O’CONNELL D. P., *The International Law of the Sea*, cit., p. 733; TANAKA Y., *The International Law of the Sea*, cit., p. 7. For sake of completeness, it must be reported that the last-mentioned author, within the list of marine space under national jurisdiction, also mentions *international straits*.

⁷⁵ UNCLOS, art. 8,1.

Within this border, the coastal State may exercise its full powers⁷⁶, coming from «its territorial sovereignty and the proximity to its coast»⁷⁷. The legal status of the internal waters – which notoriously finds its origins in customary law⁷⁸ – is not prescribed by the UNCLOS; indeed, since coastal States are free in administrating their internal waters as they prefer, there is not particular room for a detailed regulation⁷⁹.

Continuing the analysis, waters beyond and adjacent to the internal waters configure the *territorial sea*, which extends:

«up to a limit not exceeding 12 nautical miles, measured from baselines determined in accordance with this Convention»⁸⁰.

Analogously to what said about the internal waters:

«the rights of the coastal State over the territorial sea do not differ in nature from the rights of sovereignty which the State exercises over other parts of its territory»⁸¹.

Within this portion of the seas, the coastal State usually enjoys full jurisdiction, except for the customary right of innocent passage of ships flying the flag of any other State performed in compliance with UNCLOS provisions⁸².

Then, with exclusive regard to the archipelagic States⁸³, UNCLOS III has introduced the innovative concept of the *archipelagic waters*⁸⁴. These portions of the oceans, which extend «to the waters enclosed by the archipelagic baselines drawn in accordance with article 47»⁸⁵, are not to be precisely intended neither as internal waters

⁷⁶ *Military and Paramilitary Activities in and against Nicaragua*, cit., para. 213; *Fisheries case* (United Kingdom v. Norway), Judgment, I.C.J. Reports, 1951, p.18.

⁷⁷ WOLF S., *Territorial Sea*, Max Planck Encyclopedia of International Law, 2009.

⁷⁸ BANGERT K., *Internal Waters*, Max Planck Encyclopedia of International Law, 2018; CHURCHILL R. R.; LOWE A. V., *The Law of the Sea*, cit., p. 60.

⁷⁹ YANG H., *Jurisdiction of the Coastal State over Foreign Merchant Ships in the Internal Waters and the Territorial Sea*, Heidelberg, 2006, p. 45.

⁸⁰ UNCLOS, art. 3.

⁸¹ ILC, *Articles Concerning the Law of the Sea with Commentaries*, cit., p. 265. For a detailed analysis on the evolution of the territorial sea, see JESSUP P., *The Law of Territorial Waters and Maritime Jurisdiction*, cit.

⁸² UNCLOS, arts. 17-28.

⁸³ The definition of “Archipelagic State” is set by UNCLOS, art. 46 (a): «"archipelagic State" means a State constituted wholly by one or more archipelagos and may include other islands».

⁸⁴ For an exhaustive analysis on the status of archipelagic waters, see MUNAVVAR M., *Ocean States: Archipelagic Regimes in the Law of the Sea*, Dordrecht, 1995.

⁸⁵ UNCLOS, art. 49,1.

neither as territorial sea⁸⁶. From a jurisdictional perspective, the archipelagic State may exercise its territorial sovereignty⁸⁷, which is however compressed by the rights enjoyed by third States, in compliance to what is set by UNCLOS in articles from 49 to 52.

Gradually moving away from the baseline, the exercise of coastal State jurisdiction follows what is established by international norms regulating the *contiguous zone*⁸⁸. As outlined by scholars, the latter is:

«a zone of sea continuous to and seaward of the territorial sea in which States have limited powers for the enforcement of customs, fiscal, sanitary and immigration laws»⁸⁹.

In compliance with Part II, section 4 of UNCLOS – which doubled the dimensions previously provided by the Convention on the Territorial Sea and the Contiguous Zone⁹⁰ – this marine space *may*⁹¹ now extend up to 24 nautical miles from the baseline⁹².

Beyond the territorial sea and the contiguous zone, coastal State jurisdiction declines in less intense and absolute manifestations of sovereignty (strongly based on the *functionality principle*⁹³), whose regulation differs depending on whether the marine subsoil or the superjacent water column is taken into consideration. With regard to the former, Part VI of UNCLOS sets the legal regime regulating the *continental shelf*, *i.e.*:

⁸⁶ CHURCHILL R. R.; LOWE A. V., *The Law of the Sea*, cit., p. 125.

⁸⁷ UNCLOS, art. 49,2.

⁸⁸ For a complete digression on the evolution and the history of the concept of the contiguous zone, see O'CONNELL D. P., *The International Law of the Sea*, cit., p. 1034-1061.

⁸⁹ CHURCHILL R. R.; LOWE A. V., *The Law of the Sea*, cit., p. 132. For an analysis of this marine zone, see ODA S., *The concept of the contiguous zone*, *International and Comparative Law Quarterly*, 11(1), 1962, p. 131-153.

⁹⁰ Convention on the Territorial Sea and the Contiguous Zone, art. 24,2: «The contiguous zone may not extend beyond twelve miles from the baseline from which the breadth of the territorial sea is measured».

⁹¹ As established since UNCLOS I, States are not obliged to declare the contiguous zone. Precisely: «Unlike the territorial sea, the contiguous zone does not exist *ipso iure* as a natural prolongation of the land territory of a state, but must be explicitly proclaimed under the domestic legislation of the coastal state concerned» (SCOVAZZI T., *Human Rights and Immigration at Sea*, cit., p. 215). To more in this regard, see MANEGGIA A., *Il «controllo preventivo» nella zona contigua*, *Rivista di diritto internazionale*, 2017, p. 58-63; MUSSI F., *Il dilemma dell'esistenza e dei poteri esercitabili nella Zona Contigua italiana*, in ANTONUCCI A.; PAPANICOLOPULU I.; SCOVAZZI T. (eds.), *L'immigrazione irregolare via mare nella giurisprudenza italiana e nell'esperienza europea*, Torino, 2016, p. 23-44.

⁹² UNCLOS, art. 33,2.

⁹³ See note 68 of this chapter.

«a natural prolongation of its land territory into and under the sea exist ipso facto and ab initio, by virtue of its sovereignty over the land, and as an extension of it in an exercise of sovereign rights for the purpose of exploring the seabed and exploiting its natural resources»⁹⁴.

As it is known, the current regulation concerning this portion of the seabed is the result of the development that occurred both in customary and conventional law⁹⁵, that started from the renowned “Truman proclamation” of 1945⁹⁶. Within the continental shelf, whose geographical delimitation is in detail regulated by art. 76 of UNCLOS⁹⁷, the coastal States enjoy (limited) jurisdictional powers (*sovereign rights*)⁹⁸ concerning the exploration and the exploitation of natural resources⁹⁹.

Then, with regard to the waters beyond the territorial sea and the contiguous zone, coastal States may claim the configuration of their own *exclusive economic zone* (EEZ). As it is generally recognized, the constitution of such a «separate functional zone of a *sui generis* character»¹⁰⁰ has been one of the most relevant innovations brought by the UNCLOS III.

As it is codified by the Convention, the EEZ may extend up to 200 nautical miles from the baseline¹⁰¹. Within this marine space, the coastal State enjoys *sovereign rights*¹⁰² for conducting exploration, exploitation, conservation and management of the (living or non-living) natural resources of the area; moreover, it has exclusive

⁹⁴ *North Sea Continental Shelf*, cit., para. 22.

⁹⁵ STOLL P., *Continental Shelf*, Maw Planck Encyclopedia of International Law, 2008.

⁹⁶ The text of the U.S. presidential proclamation is available online at https://www.gc.noaa.gov/documents/gcil_proc_2667.pdf.

⁹⁷ With regard to the definition of the continental shelf, it is important to specify that, although this definition is based on the recourse to scientific terms, it still remains a legal prescription. This fact generates a misalignment between the scientific and legal concepts of the continental shelf. On this specific regard, see RAGNI C., *Scienza, diritto e giustizia internazionale*, cit., p. 113-120.

⁹⁸ The legal concept behind the recourse to the term “sovereign rights” – which is utilized by UNCLOS also for describing the jurisdictional rights of coastal States in the Exclusive Economic Zone – is in-depth analyzed in BARNES R., *Energy Sovereignty in Marine Spaces*, *The International Journal of Marine and Coastal Law* 29, 2014, p. 590-591.

⁹⁹ UNCLOS, art. 77,1. For an in-depth analysis in this respect, among many others, see NORDQUIST M.; MOORE J.N.; HEIDAR T. (eds.), *Legal and Scientific Aspects of Continental Shelf Limits*, Leiden, 2004.

¹⁰⁰ CHURCHILL R. R.; LOWE A. V., *The Law of the Sea*, cit., p. 162. The “*sui generis*” nature of the EEZ has been subject to several legal studies. IN jurisprudence, see the renowned cases solved by ITLOS: *M/V “Virginia”* (Panama v. Guinea Bissau), *Judgement, ITLOS Reports*, 2014; *M/V “Saiga”* (Saint Vincent and Grenadines v. Guinea), *Judgement, ITLOS Reports*, 1999. From a doctrinal perspective, among others, see QUINCE C., *The Exclusive Economic Zone*, Wilmington, 2019; ATTARD D., *The Exclusive Economic Zone in International Law*, Oxford, 1987.

¹⁰¹ UNCLOS, art. 57.

¹⁰² See note 98 of the present chapter.

jurisdiction over artificial islands, installations and other structures located inside the EEZ; again, it may exercise jurisdictional powers concerning the conduction and promotion of marine scientific research and the protection of the marine environment¹⁰³. Beyond that:

«all States [...] enjoy [...] the freedoms referred to in article 87 of navigation and overflight and of the laying of submarine cables and pipelines, and other internationally lawful uses of the sea related to these freedoms»¹⁰⁴.

Once reported the basic features characterizing the marine zones under national jurisdiction (whether spatial or functional), the last part of this section aims to briefly report some basic knowledge on the remaining portion of the marine domain beyond national jurisdiction, namely the high seas and the Area.

As far as the *high seas* are concerned, Part VII of UNCLOS (negatively) defines them as:

«all parts of the sea that are not included in the exclusive economic zone, in the territorial sea or in the internal waters of a State, or in the archipelagic waters of an archipelagic State»¹⁰⁵.

Since no State is allowed to advance claims of territorial sovereignty with regard to this residual part of the oceans¹⁰⁶, the high seas are open to all States, which may act freely with due regard to the rights provided by the Law of the Sea¹⁰⁷. Put differently,

¹⁰³ UNCLOS, art. 56,1: «(a) sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the seabed and of the seabed and its subsoil, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds;

(b) jurisdiction as provided for in the relevant provisions of this Convention with regard to:

(i) the establishment and use of artificial islands, installations and structures;

(ii) marine scientific research;

(iii) the protection and preservation of the marine environment;

(c) other rights and duties provided for in this Convention».

¹⁰⁴ UNCLOS, art. 58,1.

¹⁰⁵ UNCLOS, art. 86. The wording and the structure of this article are identical to the definition of “high seas” provided by the UN Convention on the High Seas of 1958. Accordingly, in its first article, the Convention states that: «The term “high seas” means all parts of the sea that are not included in the territorial sea or in the internal waters of a State» (clearly, the addition of the EEZ is due to the novelty of that marine zone, which did not exist at the time of the drafting of the UN Convention on the High Seas).

¹⁰⁶ UNCLOS, art. 89.

¹⁰⁷ UNCLOS, art. 87. With regard to the legal implications rising from the principle of freedom of the high seas, see CANNIZZARO E., *Il principio di proporzionalità nel diritto internazionale*, Milano, 2000, p. 147-152.

within this water column, States enjoy the *freedom of the high seas*, which – from a functional perspective – comprises «*inter alia*»:

- «(a) freedom of navigation;
- (b) freedom of overflight;
- (c) freedom to lay submarine cables and pipelines, subject to Part VI;
- (d) freedom to construct artificial islands and other installations permitted under international law, subject to Part VI;
- (e) freedom of fishing, subject to the conditions laid down in section 2;
- (f) freedom of scientific research, subject to Parts VI and XIII»¹⁰⁸.

Intuitively enough, the lack of coastal State jurisdiction imposes the adoption of an alternative criterion for the repartition of State powers over human activities conducted at sea¹⁰⁹. As it will be better analyzed in the following pages¹¹⁰, on the high seas, the UNCLOS configures a jurisdictional balance strongly based on the second criterion for distributing jurisdiction that was mentioned before, *i.e.* the *objects* utilized for carrying out activities at sea. Precisely, on the high seas, the traditional concept of *flag State jurisdiction* finds its maximum application¹¹¹.

Finally, for what concerns the deep seabed beyond national jurisdiction, UNCLOS III has largely revolutionized the previous configuration of the Law of the Sea by introducing an innovative legal regime regulating the *Area*. As anticipated before, the renowned Pardo's speech at the UN general assembly¹¹² has stimulated doctrinal, diplomatic and political debates concerning the regulation of the exploration and exploitation of mineral resources laying in the deep seabed beyond the limits of the continental shelf. The text of Part XI of the Convention of 1982 and the succeeding

¹⁰⁸ Ibid.

¹⁰⁹ *The Case of the S.S. "Lotus"*, cit., p. 25: «In virtue of the principle of the freedom of the sea, that is to say, the absence of any territorial sovereignty upon the high seas, no State may exercise any kind of jurisdiction over foreign vessels upon them». More recently, the logical nexus between the principle of freedom of the high seas and the consequential regime of exclusive flag State jurisdiction has been analyzed by international judicial bodies in the cases *The "Enrika Lexie" Incident* (Italy v. India), cit., paras. 524-527; *M/V "Norstar"* (Panama v. Italy), cit., paras. 213-218. In scholarship, see VEZZANI S., *Jurisdiction in International Fisheries Law. Evolving Trends and New Challenges*, Milano, 2020, p. 147.

¹¹⁰ See sections 2(b)(iii) and 3(b) of the present chapter.

¹¹¹ UNCLOS, art. 92,1: «Ships shall sail under the flag of one State only and, save in exceptional cases expressly provided for in international treaties or in this Convention, shall be subject to its exclusive jurisdiction on the high seas. A ship may not change its flag during a voyage or while in a port of call, save in the case of a real transfer of ownership or change of registry».

¹¹² See note 62 of the present chapter.

Implementation Agreement of 1994¹¹³ build an ambitious legal framework aimed at declining the principle of “*common heritage of humankind*”¹¹⁴ within the Area¹¹⁵. From this perspective, UNCLOS sets the legal status regulating this marine space:

«1. No State shall claim or exercise sovereignty or sovereign rights over any part of the Area or its resources, nor shall any State or natural or juridical person appropriate any part thereof. No such claim or exercise of sovereignty or sovereign rights nor such appropriation shall be recognized.

2. All rights in the resources of the Area are vested in mankind as a whole, on whose behalf the Authority shall act. These resources are not subject to alienation. The minerals recovered from the Area, however, may only be alienated in accordance with this Part and the rules, regulations and procedures of the Authority.

3. No State or natural or juridical person shall claim, acquire or exercise rights with respect to the minerals recovered from the Area except in accordance with this Part. Otherwise, no such claim, acquisition or exercise of such rights shall be recognized»¹¹⁶.

In the Area, activities can be performed both by the *Authority* (through the *Enterprise*) and/or by commercial operators sponsored by State parties¹¹⁷. The aim of such a composite system is to ensure that every activity shall «be carried out for the benefit of mankind as a whole»¹¹⁸. These principles are in detail elaborated in the text of the Convention and in the Implementation Agreement.

¹¹³ Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982, 1994. The convention was adopted by the UN General Assembly Resolution 48/263, 29 July 1994. To date, 79 States are parties to the treaty.

¹¹⁴ Albeit this author is conscious that the official terminology provided by UNCLOS uses the word “mankind”, a more recent approach prefers to use the gender-balanced expression “humankind”. For a detailed analysis about gender implications in the regime of the Law of the Sea, see PAPANICOLOPULU I. (ed.), *Gender and the Law of the Sea*, cit.

¹¹⁵ UNCLOS, art. 136. For an in-depth study on the principle of the common heritage of humankind, among many others, see MILLICAY F., *The Common Heritage of Mankind: 21st Century Challenges of a Revolutionary Concept*, in DEL CASTILLO L. (ed.), *Law of the Sea, From Grotius to the International Tribunal for the Law of the Sea*, Leiden, 2015, p. 272-295; WOLFRUM R., *Common Heritage of Mankind*, Max Planck Encyclopedia of International Law, 2009; SCHMIDT M.G., *Common Heritage or Common Burden? The United States Position on the Development of a Regime for Deep Sea-bed Mining in the Law of the Sea Convention*, Oxford, 1989.

¹¹⁶ UNCLOS, art. 137.

¹¹⁷ As known, in 2011 the Seabed Dispute Chamber (SDC) has clarified the main aspects characterizing the triangular relationship occurring between the Authority, sponsor States and private actors. See *Responsibilities and Obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area*, SDC advisory opinion, cit.

¹¹⁸ UNCLOS, art. 140,1.

iii) State jurisdiction and objects

Except for swimming, every human activity at sea necessarily presupposes the use of objects. Indeed, since persons do not have the biological capabilities to float or to breath underwater, they cannot stay at sea for a prolonged time without using any artifacts designed for overwhelming these physiological limitations. Traditionally, many different objects are utilized in the marine domain, from ships to other means of maritime transport (for example, hovercrafts), from oil rigs to platforms and installations.

This preliminary reflections help in clarifying why, when allocating and delimiting State jurisdiction at sea, the UNCLOS gives a particular relevance to objects¹¹⁹. Indeed, objects are not just one essential component for carrying out maritime activities, they also correspond to the geographical place where human agents are located; furthermore, they may be seen as the factual representation of the activity conducted¹²⁰. In other words, objects can be considered as the *synthesis* of the main aspects characterizing the performance of certain human behaviour at sea.

Going deeper into the legal analysis, UNCLOS avails of the objects for regulating State jurisdiction in two ways, which, however, are closely related to each other and, therefore, are not easily distinguishable.

First, many UNCLOS rules conceive objects as the direct *targets* for the exercise of jurisdictional State powers. Just to provide one example, in many provisions the recourse to the term “arrest” is principally referred to the object (vessel), and only secondarily to the human agents (crew)¹²¹. Again, in other cases, UNCLOS specifically describes objects as the authors of certain activities¹²² or the beneficiaries of international rights¹²³. On these occasions, it seems that UNCLOS avails of a *fictio*

¹¹⁹ Even so, it seems that from a jurisdictional perspective objects play a more significant role rather than their users, *i.e.* physical persons. In this sense, see PAPANICOLOPULU I., *The Law of the Sea Convention: No Place for Persons?*, cit., p. 868-869: «The institutional (or framework) provisions of the Convention distribute jurisdiction between states as far as the spaces and objects present at sea are concerned, *but apparently do not pronounce on jurisdiction over persons*» (emphasis added).

¹²⁰ Recalling what already argued in the first chapter of this research: «[...] technology of doing something defines the activity itself» (FRANKLIN U. M., *The Real World of Technology*, cit., p. 9).

¹²¹ See UNCLOS, arts. 28,2; 73; 109; 111.

¹²² See UNCLOS, arts. 217,4 and 220.

¹²³ In this respect, it is emblematic to recall the provisions concerning the right of innocent passage. See art. 17 of UNCLOS: «Subject to this Convention, *ships* of all States, whether coastal or land-locked, *enjoy* the right of innocent passage through the territorial sea». (emphasis added).

*iuris*¹²⁴ for sake of simplicity: since the object may be seen as the synthesis of the main aspects characterizing the performance at sea of human activities, referring to it is sufficient to effectively allocate State jurisdiction over certain human behaviours.

Second, the Convention sometimes describes the objects as the *jurisdictional link* justifying the exercise of State powers over individuals and their activities. This normative strategy looks based on two different grounds. From one side, objects at sea are the place where a community of people is located: indeed, it may be said that UNCLOS attributes a “quasi-territorial” nature¹²⁵ to certain categories of objects, treating them the jurisdictional nexus between State sovereignty and people on board of them. In this regard, the regulation of the exercise of State jurisdiction over people on *platforms* and *installations* at sea is a good example¹²⁶.

From the other side, stressing its “quasi-personal” nature, the object itself may be analogically treated as an individual, whose attribution of nationality manifests its connection with a State. In this respect, an example of this legal mechanism may be the regime of flag State jurisdiction¹²⁷, which will be in-depth analyzed in section 3(b) of this chapter.

According to these considerations, it may be concluded that UNCLOS not only avails of objects for localizing people and activities in a certain portion of the oceans – and so giving shape to the zonal repartition of State jurisdiction at sea – but it also attributes to them a specific *jurisdictional legal status*: in some cases, objects are the target of State jurisdiction, while in other cases they are the link justifying the exercise of State authority over a community of people. Accordingly, this explains why international lawyers have always paid particular attention to the legal status of the objects used in the marine field. As a confirmation of this – beyond the well-known legal debate concerning the definition of “ship”, which will be reported in the following

¹²⁴ From a philosophical standpoint, the recourse to fiction is not necessarily related to legal thought; instead, it is a common mechanism of the human mind to elaborate knowledge. On this topic, see VAHINGER H., *Philosophie in der Staatsprüfung. Winke für Examinatoren und Examinanden*, Berlin, 1906.

¹²⁵ CHENG B., *The Extra-Territorial Application of International Law*, cit., p. 135: «This is the sum total of the powers of a State in respect of ships, aircraft and spacecraft [...]. Quasi-territorial jurisdiction differs from personal jurisdiction in that it extends not only to the craft in question but also to all persons and things on board, including the activities of such persons, whether on board the craft or elsewhere».

¹²⁶ See UNCLOS, arts. 56; 60; 79; 87.

¹²⁷ See section 3(b)(i) of the present chapter and, more precisely, note 216.

pages¹²⁸ – scholars in-depth analyzed the legal status of oil rigs¹²⁹, installations¹³⁰, marine scientific research devices¹³¹, hovercrafts¹³², gliders¹³³, MODUs¹³⁴ and, nowadays, MASS¹³⁵.

To conclude, the use at sea of one object instead of another is not neutral from a jurisdictional perspective: the current configuration of the jurisdictional balance at sea highly takes into account such a fundamental aspect.

¹²⁸ See section 3(a) of the present chapter.

¹²⁹ Among others, see ESMAEILI H., *The Legal Regime of Offshore Oil Rigs in International Law*, Burlington, 2001.

¹³⁰ See NANDA, V. P., *Legal Status of Surface Devices Functioning at Sea Other Than Ships (Drilling Rigs, Offshore Platforms, etc.)*, American Journal of Comparative Law Supplement, 1977-1978, p. 233-243.

¹³¹ On this issue, see WEGELEIN F., *Marine Scientific Research: The Operation and Status of Research Vessels and Other Platforms in International Law*, Leiden/Boston, 2005, p. 121-173.

¹³² International Law Association (ILA), *Draft Convention for the Unification of certain rules relating to Hovercraft*, 1976 President: Dr Rodriguez Sastre.

¹³³ HOFMANN T.; PROELSS A., *The Operations of Gliders under the International Law of the Sea*, cit.

¹³⁴ The uncertain nature of MODUs (acronym for mobile offshore drilling units) has been the object of an international dispute between Denmark and Finland (*Passage through the Great Belt* (Finland v. Denmark), Provisional Measures, Order of 29 July 1991, I.C.J. Reports, 1991, p.12), which has been solved by a settlement agreement raised by the parties before the final decision of the Court. This case will be better observed when dealing with the definition of “ship” in International Law (see section 3 of this chapter).

¹³⁵ MCKENZIE S., *When is a Ship a Ship? Use by State Armed Forces of Uncrewed Maritime Vehicles and the United Nations Convention on the Law Of The Sea*, cit.; CALIGIURI A., *A New International Legal Framework for Unmanned Maritime Vehicles?*, cit.; CHIRCOP A., *Maritime Autonomous Surface Ships in International Law*, cit.; KLEIN N., *Maritime Autonomous Vehicles within International Law Framework to Enhance Maritime Security*, cit., p. 251-253; DEAN P.; CLACK H., *Autonomous Shipping and Maritime Law*, cit., p. 70-72; RINGBOM H., *Regulating Autonomous Ships – Concepts, Challenges and Precedents*, cit.; CAREY L., *All Hands off Deck? The Legal Barriers to Autonomous Ships*, cit.; ALLEN C.H., *Determining the Legal Status of Unmanned Maritime Vehicles: Formalism vs Functionalism*; VEAL R.; RINGBOM H., *Unmanned Ships and the International Regulatory Framework*, cit.; CHWEDCZUK M., *Analysis of the Legal Status of Unmanned Commercial Vessels in U.S. Admiralty Law and Maritime Law*, cit.; VON HEINEGG W. H., *The Exasperating Debate on the Legality of Unmanned Systems*, cit.; PRITCHETT, P. W., *Ghost ships: Why the law should embrace unmanned vessel technology*, cit.; VAN HOOYDONK H., *The Law of Unmanned Merchant Shipping*, cit.

3. Jurisdiction over the human activity of navigation

Once generally outlined the main features constituting the contemporary jurisdictional balance at sea, the present section limitedly addresses the allocation of State jurisdictional powers over the human activity of navigation.

Recalling what was argued in the first chapter, for the purposes of this work “navigation at sea” is intended as the way of crossing waters through the use of ships¹³⁶. From a factual perspective, the human involvement (subjective element) and the ships (objective element) are the conceptual core basis of navigation. In coherence with this, two main methodological clarifications need to be further outlined before addressing the proposed study.

First, this section will limitedly address the allocation of State jurisdictional powers *over* navigation; therefore, the analysis of any other human activity realized *through* navigation (for example, fishing or the laying submarine cables and pipelines) will not be part of the proposed study.

Second, the concept of “ship” will necessarily play a pivotal role in the development of this research. Accordingly, the first fundamental step for reconstructing the legal framework of reference is to deal with the meaning this word assumes within the Law of the Sea. As noted in the previous pages, when allocating the exercise of States’ powers at sea, UNCLOS gives particular relevance to objects¹³⁷; therefore, the concept of “ship” will be studied with specific regard to the law of maritime jurisdiction, in order to infer a definition that can be functional for the succeeding analysis.

The issue concerning the definition of “ship” is not just a theoretical and abstract question, but it gives rise to concrete international controversies. In this regard, it must be remembered that this topic has been at the basis of a judicial dispute between the States of Finland and Denmark, which was brought before the International Court of Justice in 1991¹³⁸. On that occasion, Finland filed an application concerning the Danish plan to build a high-level bridge over the Great Belt strait. Finland claimed that the

¹³⁶ See section 2 of the first chapter of the present research.

¹³⁷ See note 119 of the present chapter.

¹³⁸ *Passage through the Great Belt*, ICJ, cit.

construction of the bridge would hamper the right of innocent passage of its ships and, in particular, of its mobile offshore drilling units (MODUs)¹³⁹. The possibility to define MODUs as “ships” was the central legal question of the case¹⁴⁰, which, however, was solved through a settlement agreement raised by the Parties before the final decision of the Court: the case was struck from the Court’s list in 1992. The reach of the non-dispute settlement precluded the International Court of Justice from the possibility to attain some clarity about the definition of “ship” in International Law¹⁴¹.

Once addressed and concluded this introductory digression, it will be finally possible to dwell on the existing norms regulating the allocation of maritime jurisdiction. Although not specifically devoting any of its Parts to this topic, UNCLOS is replete with rules addressing the allocation of State jurisdictional powers over ships. Accordingly, this study will not disregard the careful analysis of the regulation of the different marine zones configuring the UNCLOS regime. Indeed, the allocation of State sovereign powers over navigation strongly depends on where the activity is performed¹⁴²; accordingly, the different Parts of UNCLOS regulating the related marine zones have a specular relevance in the configuration of the legal framework object of analysis.

Once acknowledged this, however, it must be also anticipated the pivotal role played by the regime of *flag State jurisdiction* into this field. Independently of where navigation occurs, in fact, the link between the ship and its flag State is the primary relation upon which the process of reconstruction of the jurisdictional balance starts¹⁴³. For this reason, sections 3(b) and 3(c) will be dedicated to the analysis of the rules composing the regime of flag State jurisdiction, also taking into strong consideration its gradual declinations depending on the specific marine zone where navigation occurs.

¹³⁹ For a more clear and detailed analysis of the case, see KOSKENNIEMI M., *Case concerning Passage Through the Great Belt*, 27 *Ocean Development & International Law*, 1996, p. 255-290; CANNIZZARO E., *Il principio di proporzionalità nel diritto internazionale*, cit., p. 113-117.

¹⁴⁰ LOWE V., *Ships*, BOSCHIERO N., et al. (eds.), *International Courts and the Development of International Law*, The Netherlands, 2013, p. 292.

¹⁴¹ KOSKENNIEMI M., *Case concerning Passage Through the Great Belt*, cit., p. 256.

¹⁴² ROUCOUNAS E., *Effectiveness of International Law for the Users of the Sea*, cit., p. 905.

¹⁴³ GAVOUNELI M., *Functional Jurisdiction in the Law of the Sea*, cit., p. 165.

Flag State jurisdiction is one of the most ancient institutes of the law of the sea¹⁴⁴; its evolution over time is the fruit of the development of international legal thought itself. For this reason, this study will report some of the most relevant doctrinal considerations about the conceptualization of the legal institute of flag State jurisdiction. These reflections will help in addressing the succeeding positive analysis of the legal framework setting the contemporary features on the allocation of maritime jurisdiction provided by UNCLOS.

Lastly, the outlined research will be completed by a critical overview regarding the concrete malfunctions of the normative system of State governance at sea (section 3(d)); as it is well known, indeed, the phenomena of *Flags of Convenience* and of open registries are negatively marking the governance over the international maritime transport.

a) State jurisdiction over “ships”

i) The concept of “ship” in International Law

«A ship is a ship. What more clear than that? Everyone knows what a ship is: something built by men, going in the water and carrying persons and goods»¹⁴⁵.

Through this provocative statement, prof. Lazaratos successfully highlighted the generic nature of the term under analysis, which, traditionally, looks:

«[...] fixed enough to accommodate new species, rigid enough to be indisputable»¹⁴⁶.

In the common language, the word “ship” has a sufficiently clear meaning¹⁴⁷. Analogously to what was said about the term “navigation”¹⁴⁸, “ship” may be intended as

¹⁴⁴ For a historical summary of its origins and relevance in the past, see BARNES R., *Flag States*, in ROTHWELL D.; ELFERINK O.; SCOTT K.; STEPHENS T. (eds.), *The Oxford Handbook of The Law of the Sea*, Oxford, 2015, p. 305-306.

¹⁴⁵ LAZARATOS, G., *The Definition of Ships in National and International Law*, *Revue Hellenique de Droit International*, 1969, p. 58.

¹⁴⁶ *Ibid.*

a *primitive concept of language*¹⁴⁹: everyone who sees a ship can recognize it as such, even without having a clear definition in mind.

Having said this, however, it cannot be ignored that the *factual nature* of ships is in constant evolution over time¹⁵⁰. Clearly, the progressive technological development questions the tautological character of the common-sense conception of “ship”¹⁵¹: even if the recourse to this term could be still considered as sufficiently clear for everyday conversations, the same word appears to be generic and ambiguous when engaging a technical debate¹⁵². Coherently, the recourse to the term “ship” in a normative provision could give rise to many interpretative issues¹⁵³.

In the international legal system, it does not exist an *all-encompassing* definition of “ship”. Even the UNCLOS, which aims to regulate many aspects concerning the human activity of navigation, does not provide a conventional definition to this term¹⁵⁴.

¹⁴⁷ It is interesting to record what Lord Justice Scrutton declared about the definition of “ship” in the British decision *Merchants Marine Ins. Co. v. North of England Protecting & Indemnity Ass’n*, 26 Lloyd’s List L. Reports 201, 203, 1926: «One might possibly take the position of the gentleman who dealt with the elephant by saying he could not define an elephant, but he knew what it was when he saw one, and it may be that that is the foundation of the learned Judge’s judgement [in the court below], that he cannot define “ship or vessel” but he knows this thing is not a ship or vessel. [...] The discussion today of the various incidents and various kind of things to which [the words “ships and vessels”] been applied, has convinced me that it is of no use at present to try to define it, and the only thing I can do in this case is to treat it as a question of fact».

¹⁴⁸ See section 2 of the first chapter of the present research.

¹⁴⁹ STEBBING L.S., *A Modern Introduction to Logic*, cit., p. 175. In the study on International Law, a definition of primitive concepts is given by CHENG B., *General Principles of Law as Applied by International Courts and Tribunals*, cit., p. 105: «Such rudimentary terms elude a priori definition; they can be illustrated, but not defined; they must be applied to the circumstances of each case».

¹⁵⁰ See section 2 of the first chapter of this research.

¹⁵¹ MUSI M., *Il concetto giuridico di nave*, cit., p. 5: «il progresso della scienza e della tecnica in ambito marittimo, più che altrove, ha avuto come effetto inatteso quello di riportare il giurista alle origini, costringendolo a rimediare la definizione del mezzo nautico per antonomasia, la nave [...]». Again, see ZAMUNER E., *La tutela delle navi private nel diritto internazionale*, Napoli, 2015, p. 33; LUCCHINI L.; VOELCKEL M., *Droit de la mer*, cit., p. 38.

¹⁵² LUCCHINI L.; VOELCKEL M., *Droit de la mer*, cit., p. 19.

¹⁵³ The issue concerning the definition of “ship” has been many times addressed by national courts. In this regard, it must be remembered the recent decision of in the Romanian national legal system: Case C-291/18, *Grup Servicii Petroliere SA v. Agenția Națională de Administrare Fiscală — Direcția Generală de Soluționare a Contestațiilor Agenția Națională de Administrare Fiscală — Direcția Generală de Administrare a Marilor Contribuabili*, 10 April 2019, Request for a preliminary ruling from the Curtea de Apel București. In this regard, the first and fundamental question brought to the Court was whether an offshore ‘jackup’ drilling rig could be considered as a vessel used for navigation on the high seas. Furthermore, a similar topic has been addressed by U.S. federal courts in the *Stewart v. Dutra Constr. Co.*, 2005, during which it has been argued whether a huge floating platform with a clamshell bucket hanging below the water, the “Super Scoop” was a vessel with regard to federal labour law.

¹⁵⁴ ROUCOUNAS E., *Effectiveness of International Law for the Users of the Sea*, cit., p. 877: «Yet Article 1 of the UNCLOS contains a selective (and even useless) list of definitions, but ignores the ship. Nowadays the ship, the most important user at sea, has no uniform legal status».

In the last decades, the international community has often tried to articulate a comprehensive definition of “ship”. In this regard, prof. Francois, the special rapporteur for the ILC *Articles concerning the Law of the Sea*¹⁵⁵, proposed to define the term “ship” in order to:

«[...] éviter certaines difficultés et la Commission pourrait s’adresser aux gouvernements à ce sujet»¹⁵⁶.

To this end, he promoted the adoption of the renowned formulation edited by prof. Gidel, pursuant to which:

«La navire de mer de surface n’est pas seulement tout engin flottant, mais tout engin, quelles que soient ses dimensions et sa denomination, apté à se mouvoir dans les espaces maritimes (à l’exclusion des autres milieu) avec l’armement et l’équipage qui li sont propres en vue des services que comporte l’industrie à laquelle il est employé»¹⁵⁷.

In the final instance, however, the ILC opted not to fix the meaning to attribute to “ship”¹⁵⁸; therefore, no definition to this term was included in the final draft of the Convention on the High Seas.

Similarly, in 1961, in the preparatory works of the *Draft Articles on Consular Intercourse and Immunities*, the special rapporteur Zourek proposed a definition of “Vessel of State”¹⁵⁹. Even on that occasion, the Commission decided not to go into such a terminological dilemma.

Although this term has never been *generally* defined, many conventional provisions dispose of *ad hoc* definitions of “ship” or “vessel”¹⁶⁰: to date, there are more than thirty different conventional definitions of these two interchangeable terms¹⁶¹.

¹⁵⁵ See note 56 of the present chapter.

¹⁵⁶ ILC, Report of Special Rapporteur Mr J.P.A. Francois, Doc. A/CN. 4/17, in YILC (1950), vol. II, p. 38.

¹⁵⁷ GIDEL G., *Le droit international public de la mer*, cit., p. 70.

¹⁵⁸ WALKER G. K., *Definitions for the Law of the Sea: Terms not Defined by the 1982 Law of the Sea Convention*, cit., p. 320; O’CONNELL D. P., *The International Law of the Sea*, cit., p. 750.

¹⁵⁹ *Draft on Consular Intercourse and Immunities*, Doc. A/4425, in YILC (1961), vol. 1, art 1 (n): «Vessel of State means any craft which is used for maritime or inland navigation and which flies the flag of the State in question or is registered there».

¹⁶⁰ Within the Law of the Sea, the terms “ship” and “vessel” are usually considered synonyms. To confirm this, the terms were viewed as identical at the Third U.N. Conference on the Law of the Sea. This position is supported by MCKENZIE S., *When is a Ship a Ship? Use by State Armed Forces of Uncrewed Maritime Vehicles and the United Nations Convention on the Law Of The Sea*, cit., p. 2 and 11; WALKER G. K., *Definitions for the Law of the Sea*, cit., p. 318; LAZARATOS, G., *The Definition of Ships in National*

In order to provide some relevant examples, art. 2,4 of the MARPOL Convention states that:

«"Ship" means a vessel of any type whatsoever operating in the marine environment and includes hydrofoil boats, air-cushion vehicles, submersibles, floating craft and fixed or floating platforms»¹⁶².

Then, article 3(a) of the COLREGS Convention affirms:

«the word "vessel" includes every description of water craft, including non-displacement craft, WIG craft and seaplanes, used or capable of being used as a means of transportation on water»¹⁶³.

Again, in the London Dumping Convention¹⁶⁴, "vessels" are defined as:

«means of waterborne [...] craft of any type whatsoever. This expression includes air cushioned craft and floating craft, whether self-propelled or not»¹⁶⁵.

Furthermore, in the United Nations Convention on Conditions for Registration of Ships¹⁶⁶, the term "ship" is intended as:

«any self-propelled sea-going vessel used in international seaborne trade for the transport of goods, passengers, or both with the exception of vessels of less than 500 gross registered tons»¹⁶⁷.

Conclusively, the UNTOC Protocol against the Smuggling of Migrants by Land, Sea and Air¹⁶⁸ defines "vessel" as:

and International Law, cit., p. 64-65. More recently, see DEAN P.; CLACK H., *Autonomous Shipping and Maritime Law*, cit., p. 73.

¹⁶¹ C. CARTNER J.; FISKE R.P.; LEITER T.L., *The International Law of the Shipmaster*, cit, p. 86. For a detailed analysis of conventional definitions of the terms "ship" and "vessel", see MUSI M., *Il concetto giuridico di nave*, cit., p. 155-178.

¹⁶² MARPOL Convention, art. 2(4).

¹⁶³ COLREGs Convention, art. 3(a).

¹⁶⁴ London Dumping Convention, signed in 1972, entered into force in 1975. To date, 87 States are parties to the convention, representing 56.03% of the world's tonnage.

¹⁶⁵ London Dumping Convention, art. III(2).

¹⁶⁶ United Nations Convention on Conditions for Registration of Ships, signed in 1986. To date only 15 States are Parties. As a consequence, the convention has not yet entered into force, since art. 19,1 requires the representation of, at least, 25% of the world's tonnage.

¹⁶⁷ United Nations Convention for Registration of Ships, article 2.

«any type of water craft, including non-displacement craft and seaplanes, used or capable of being used as a means of transportation on water, except a warship, naval auxiliary or other vessel owned or operated by a Government and used, for the time being, only on government non-commercial service»¹⁶⁹.

Summarizing what has been already observed, the proliferation of specific conventional definitions of “ship” corresponds to the absence of a general and all-encompassing meaning to give to this term. Intuitively, this is due to the fact that:

«“ship” is one of those legal terms that is, like “property”, more a label for a set of overlapping categories of objects – a family of related concepts – than a coherent and clearly delineated concept itself»¹⁷⁰.

Following this reflection, the *legal pluri-qualification* of the notion “ship”¹⁷¹ makes it difficult and, to some extends, undesirable to look for an all-encompassing legal definition¹⁷².

By limitedly referring to the above-mentioned IMO conventional definitions, it seems that the “ship” must be intended just as the *instrument* used by the seafarers, namely the objective element of navigation¹⁷³. Clearly, this is because these multilateral treaties, whose main purpose is to ensure *safety of navigation*¹⁷⁴, aim at specifically defining the technical requirements for the construction and use of the means of maritime transport. Of course, different treaties imply some divergences concerning the

¹⁶⁸ Protocol against the Smuggling of Migrants by Land, Sea and Air, supplementing the United Nations Convention against Transnational Organized Crime, signed in 2000, entered into force in 2004. To date, 150 States are Parties to the convention.

¹⁶⁹ UNTOC Protocol against the Smuggling of Migrants by Land, Sea and Air, art. 3 letter (d).

¹⁷⁰ LOWE V., *Ships*, cit., p. 296. On the same view, see LUCCHINI L.; VOELCKEL M., *Droit de la mer*, cit., 1990, p. 19: see: «La notion de navire exprime, en fait, un certain rapport entre l'homme et la mer, une certaine forme d'utilisation du milieu marin, pour le transport, pour la pêche, pour la guerre». Again, see what stated by O'CONNELL D. P., *The International Law of the Sea*, cit., p. 747: «The term 'ship' is used with different meanings in different contexts, depending upon the purpose, and may be inclusive or exclusive of objects from one context to another».

¹⁷¹ MUSI M., *Il concetto giuridico di nave*, cit., p. 8; ZAMUNER E., *La tutela delle navi private nel diritto internazionale*, cit. p. 34.

¹⁷² MUSI M., *Il concetto giuridico di nave*, cit., p. 14: «[...] la ricerca di una definizione di “nave” omnicomprensiva e valida per qualunque circostanza possa risultare un esercizio sterile, frutto forse di una visione miope, che non tiene in debito conto la multiformità del mondo legato allo *shipping* in senso lato».

¹⁷³ LUCCHINI L.; VOELCKEL M., *Droit de la mer*, t. II, *Délimitation, Navigation et Pêche*, Pedone, Paris, 1996, p. 31; GIDEL G., *Le droit international public de la mer*, cit., p. 70.

¹⁷⁴ See section 3 of the first chapter of the present research.

definition of “ship”, depending on their specific objectives¹⁷⁵. For example, since the MARPOL’s goal is to prevent maritime pollution, its definition of “ship” even includes fixed and floating platforms¹⁷⁶; on the contrary, the UN Convention on Conditions for Registration of Ships excludes vessels of less than 500 gross registered tons¹⁷⁷. However, beyond some small differences, all the reported treaties generally conceive “ships” as means of maritime transport, *i.e.* the *objective element of navigation*. According to these treaties, “ship” is the *semantical expression describing the instrument used for performing the human activity of navigation*¹⁷⁸.

However, and not surprisingly, the term understudy may acquire many other meanings¹⁷⁹. As it will be better observed below, in some circumstances, “ship” is not just an instrument, an artifact, but it also describes the group of people on board¹⁸⁰; in other cases, “ship” becomes a physical place¹⁸¹; in some others, “ship” is treated as a person itself¹⁸², who is born, lives and acquires a certain legal personality¹⁸³ during *her*¹⁸⁴ life.

¹⁷⁵ When dealing with the relativity of the meaning to give to the word “ship” according to the specific purpose of the treaty of reference, O’CONNELL recognizes the «purposive definition of “ship”» (O’CONNELL D. P., *The International Law of the Sea*, cit., p. 749). More recently, this position is adopted by MCKENZIE S., *When is a Ship a Ship? Use by State Armed Forces of Uncrewed Maritime Vehicles and the United Nations Convention on the Law Of The Sea*, cit., p. 20.

¹⁷⁶ See note 162 of this chapter.

¹⁷⁷ See note 167 of this chapter.

¹⁷⁸ Analogously, also in the *Stewart v. Dutra Constr. Co.*, the American super Court defined “vessel” as: «any watercraft practically capable of maritime transportation, regardless of its primary purpose or state of transit at a particular moment».

¹⁷⁹ MEYERS H., *The Nationality of Ships*, The Hague, 1967, p. 16: «In international law, too, it must be assumed that different definitions of ship may obtain for the determination of the scope of different rules of law».

¹⁸⁰ On this side, we refer to article 94(1) of UNCLOS, which poses a duty of every State to effectively exercise its jurisdiction and control over ships flying its flag. This provision primarily refers to the master, officers and crew. On the same view, see MEYERS H., *The Nationality of Ships*, cit., p. 12-13.

¹⁸¹ As declared in *The Case of the S.S. “Lotus”*, cit., para. 25: «a corollary of the principle of the freedom of the seas is that a ship on the high seas is assimilated to the territory of the state the flag of which it flies».

¹⁸² HOWARD A. T., *Personification of the Vessel: Fact or Fiction*, Journal of Maritime Law and Commerce, 1990. In this regard, it must be remembered that this legal fiction is typical in admiralty law systems (see PETERS D. W., *What is a Vessel in Admiralty Law*, Cleveland Law State Review, 1957).

¹⁸³ MUSIM., *Il concetto giuridico di nave*, cit., p. 42-57.

¹⁸⁴ It is quite emblematic that in the English language “ship” is a feminine noun, and not neutral, as typical when referring to objects. This grammatical exception poses gender-related further issues (see PAPANICOLOPULU I. (ed.), *Gender and the Law of the Sea*, cit.).

Even delimiting this analysis regarding the UNCLOS regime, it could be still concluded that many different meanings may be given to the word “ship”¹⁸⁵. Allegedly, this is because the main purpose of UNCLOS is to set a «Constitution of Oceans»¹⁸⁶; therefore, the concept of “ship” shall fit within a broader framework rather than other more limited treaty regimes, such as, for example, the above-mentioned IMO conventions on safety of navigation. Accordingly, an all-encompassing UNCLOS definition of “ship” could be unable to preserve its multifaceted nature and its (necessary) capability to adapt itself depending on the specific circumstances taken into account¹⁸⁷. In this regard, prof. Walker affirmed that:

«because so many different rules apply to ships, because those rules may fulfill so many different purposes, and because those rules might apply to so many different types of objects, I doubt that one all-encompassing definition for the Law of the Sea Convention would be satisfactory»¹⁸⁸.

ii) The definition of “ship” for jurisdictional purposes: analysis of the *Saiga* Case

According to what has been already affirmed, the reconstruction of the meaning to assign to the word “ship” needs to take into consideration the specific legal context of reference. Then, since the present section addresses the allocation of the State’ powers over the human activity of navigation, the following analysis is limited to observe the concept of “ship” with exclusive concern to the law of maritime jurisdiction.

In this regard, what has been expressed by the ITLOS in the *Saiga judgement*¹⁸⁹ has a pivotal relevance into this field; accordingly, the following pages are intended to report the principal conclusions provided by the international Tribunal on that occasion.

The ITLOS decision of 1999 has signed the conclusion of an international judicial dispute started in 1997¹⁹⁰, which makes history for being the first judgement ever before

¹⁸⁵ PAIK J.H., *The Tribunal’s Jurisprudence and its Contribution to the Rule of Law*, in International Tribunal for the Law of the Sea (ed.), *The Contribution of the International Tribunal for the Law of the Sea to the Rule of Law: 1996-2016*, Leiden, 2018, p. 64.

¹⁸⁶ See note 113 of the first chapter.

¹⁸⁷ With regard to the legitimacy of evolutionary interpretation of UNCLOS provisions, see section 5(a) of the first chapter of the present work.

¹⁸⁸ WALKER G. K., *Definitions for the Law of the Sea*, cit., p. 321.

¹⁸⁹ *M/V “Saiga”* (Saint Vincent and Grenadines v. Guinea), *Judgement*, ITLOS Reports, 1999.

the ITLOS¹⁹¹. The Saiga ship, a Cypriot-owned, Scottish-managed and Swiss-chartered oil tanker flying the flag of Saint Vincent and the Grenadines, was engaged in conducting *bunkering activities*¹⁹² off the coast of West Africa. On 28 October 1997, the ship – whose master and crew were all of the Ukrainian nationality, except for three Senegalese nationals – was arrested by Guinean patrol boats within the EEZ of the same country. On 13 November 1997, Saint Vincent and Grenadines submitted to ITLOS a request for the prompt release of the Saiga; on 4 December 1997, the ITLOS accepted the request of releasing the ship and its crew.

On 22 December 1997, Saint Vincent and Grenadines asked the Tribunal to adjudge and declare whether the actions of Guinea violated its right of freedom of navigation¹⁹³. On 1 July 1999, the ITLOS published its decision to the case, declaring that Guinea violated:

¹⁹⁰ *M/V "Saiga"* (Saint Vincent and the Grenadines v. Guinea), Prompt release, *Judgment, ITLOS Reports*, 1997.

¹⁹¹ To more about the first judgment ever of ITLOS, see KWIATKOWSKA B., *Inauguration of the ITLOS Jurisprudence: The Saint Vincent and the Grenadines v. Guinea M/V Saiga Cases*, *Ocean Development & International Law*, 1999, p. 43-77.

¹⁹² *Bunkering activities* may be defined as refueling operations for ships occurring in the high seas. The conduction of these activities is not specifically regulated by UNCLOS. In the last years, they have been analyzed by many ITLOS judicial decisions: *M/T "San Padre Pio"* (Switzerland V. Nigeria), *Order Of Provisional Measures*, *ITLOS Reports*, 2019; *M/V "Norstar"* cit.; *M/V "Virginia"*, cit.; *M/V "Saiga"* cit. In scholarship, with regard to this topic, among many others, see TANAKA Y., *The International Law of the Sea*, cit., p. 157-158; TESTA T.D., *Coastal State Regulation of Bunkering and Ship-to-Ship (STS) Oil Transfer Operations in the EEZ: An Analysis of State Practice and of Coastal State Jurisdiction under the LOSC*, *Ocean Development & International Law*, 2019, p. 363-386.

¹⁹³ *M/V "Saiga"* cit., para. 23: «The Government of St. Vincent and the Grenadines asks the International Tribunal to adjudge and declare that: (1) the actions of Guinea (inter alia the attack on the m/v "Saiga" and its crew in the exclusive economic zone of Sierra Leone, its subsequent arrest, its detention and the removal of the cargo of gasoil, its filing of charges against St. Vincent and the Grenadines and its subsequently issuing a judgment against them) violate the right of St. Vincent and the Grenadines and vessels flying its flag to enjoy freedom of navigation and/or other international lawfulnesses of the sea related to the freedom of navigation, as set forth in Articles 56(2) and 58 and related provisions of the Convention; (2) subject to the limited exceptions as to enforcement provided by Article 3:(1)(a) of the Convention, the customs and contraband laws of Guinea, namely inter alia Articles 1 and B of Law 94/007/CTRN of 15 March 1994, Articles 316 and 317 of the Code des Douanes, and Articles 361 and 363 of the Penal Code, may in no circumstances be applied or enforced in the exclusive economic zone of Guinea; (3) Guinea did not lawfully exercise the right of hot pursuit under Article 111 of the Convention in respect of the m/v "Saiga" and is liable to compensate the m/v "Saiga" pursuant to Article 111(S) of the Convention; (4) Guinea has violated Articles 292(4) and 296 of the Convention in not releasing the m/v "Saiga" and her crew immediately upon the posting of the guarantee of US\$400,000 on 10 December 1997 or the subsequent clarification from Crédit Suisse on 11 December; (5) the citing of St. Vincent and the Grenadines as the flag state of the m/v "Saiga" in the criminal courts and proceedings instituted by Guinea violates the rights of St Vincent and the Grenadines under the 1982 Convention».

«the rights of Saint Vincent and Grenadines under the Convention in arresting the *Saiga*, and in detaining the *Saiga* and members of its crew, in prosecuting and convicting and in seizing the *Saiga* and confiscating its cargo»¹⁹⁴.

The international dispute under study addressed the topic concerning the allocation of State jurisdictional powers over ships; in particular, the ITLOS was called to interpret the UNCLOS provisions concerning the regime of flag State jurisdiction. Within this general context, the Tribunal analyzed the specific question of whether Saint Vincent and Grenadines had the right to bring claims involving a ship flying its flag whose crew was not, however, composed by any of its nationals¹⁹⁵. On this matter, the ITLOS confirmed the faculty of the applicant granted by the UNCLOS to act in defense of the *Saiga*'s seafarers, regardless of their nationality. Indeed, through a systematic analysis of UNCLOS provisions on maritime jurisdiction¹⁹⁶, the Tribunal concluded that a "ship" must be intended as *one single entity necessarily linked to the flag State*¹⁹⁷. Precisely:

«The provisions referred to in the preceding paragraph indicate that the Convention considers a *ship as a unit*, as regards the obligations of the flag State with respect to the ship and the right of a flag State to seek reparation for loss or damage caused to the ship by acts of other States and to institute proceedings under article 292 of the Convention. *Thus the ship, everything on it, and every person involved or interested in its operations are treated as an entity linked to the flag State*»¹⁹⁸.

Years later, the outlined conceptualization of "*ship as a unit*" has been confirmed by the ITLOS in the *Arctic Sunrise*¹⁹⁹ and *Virginia* cases²⁰⁰. In particular, for what

¹⁹⁴ *M/V "Saiga"* cit., para. 71.

¹⁹⁵ Indeed, according to Guinea: «certain claims of Saint Vincent and the Grenadines cannot be entertained by the Tribunal because they relate to violations of the rights of persons who are not nationals of Saint Vincent and the Grenadines» (*M/V "Saiga"* cit., para. 103).

¹⁹⁶ Precisely, UNCLOS arts. 94, 106, 110, 111, 217, 292.

¹⁹⁷ SCOVAZZI T., *ITLOS and Jurisdiction over Ships*, cit, p. 393.

¹⁹⁸ *M/V "Saiga"*, cit., para. 106 (emphasis added).

¹⁹⁹ "*Arctic Sunrise*" (Kingdom of Netherlands v. Russian Federation), Order of Provisional Measures, ITLOS Reports, 2013. While the recourse to the concept of "ship as a unit" was not made explicit in the order of ITLOS, it clearly directed ITLOS' decision (in this regard, see DRENAN, M. T., *Gone overboard: Why the arctic sunrise case signals an over-expansion of the ship-as-a-unit concept in the diplomatic protection context*, California Western International Law Journal, 2014, p. 109-168). Moreover, through a separate opinion, Judge Jesus explicitly stated that: «the ship-as-a-unit concept developed by the Tribunal in the *M/V "SAIGA"* (No. 2) Case brings all crew members of a vessel under the international judicial protection of the vessel's flag State, even those of a nationality different from that of the flag State». This position has also been adopted by the PCA in the succeeding *The Arctic Sunrise Arbitration* (Netherlands v. Russia), Award of 14 August 2015, (PCA Case No. 2014-02), para. 170.

²⁰⁰ See *M/V "Virginia"*, cit., paras. 119-129.

concerns the latter judgement, the Tribunal was called to adjudge and declare whether the forceful treatment of the master and the arrest of the ship *Virginia* committed by Guinea-Bissau violated the jurisdictional rights of the flag State of Panama. On that occasion, the ITLOS, explicitly reiterating the position adopted in the *Saiga* case, declared that:

«[...] the M/V *Virginia* G is to be considered *as a unit* and therefore the M/V *Virginia* G, its crew and cargo on board as well as its owner and every person involved or interested in its operations are to be treated as an entity linked to the flag State. Therefore, Panama is entitled to bring claims in respect of alleged violations of its rights under the Convention which resulted in damages to these persons or entities»²⁰¹.

iii) *Ad interim* conclusions: “ship” as a unit

The outlined digression about the meaning of the word “ship” has demonstrated the absence of an all-encompassing legal definition of this term. This conclusion is still valid even when limitedly referring to the UNCLOS regime. Accordingly, the term under study may not be intended monolithically: the multiplicity of the reported conventional definitions reflects the different fields within which this concept assumes a peculiar legal relevance.

For the purposes of this chapter – which, as already announced, is to deal with the regulation of State jurisdiction over the activity of navigation – “ship” needs to be intended as it has been defined by the ITLOS in the *Saiga* and *Virginia* cases; precisely, the word “ship” defines the *unity between the subjective and objective elements configuring the activity of navigation*.

As highlighted in section 2(a), the law of jurisdiction may be described as the regulation of the State’s authority over a certain human behaviour; tautologically, the law of maritime jurisdiction is the normative field dealing with the exercise of the States’ powers over the human activity of navigation. Unlike the previously analyzed rules on safety of navigation²⁰², which regulate the ergonomics *of* this human activity, the rules now under study address the allocation of State’s powers *over* navigation.

²⁰¹ *M/V “Virginia”*, cit., para. 127 (emphasis added).

²⁰² These rules have been in-depth analyzed in the first chapter of the present research.

Once remembered this, it is quite intuitive to understand why the concept of “ship” for jurisdictional purposes acquires a *meaning which goes beyond the mere definition of the objective element of navigation*. In fact, since the rationale of these rules is to specify and delimit the authority of States *over* navigation – and not just to regulate the physical performance *of* navigation – UNCLOS remains silent about the definition to give to the object “ship”. When referring to this term, the Convention *uses it to synthetically refer to the activity itself*, which, as many times remarked, is composed of the subjective and the objective elements²⁰³. From this perspective, the reference to “ship” is aimed at describing the human activity of navigation: in other words, “ship” – which may instinctively recall to the mere object used for navigation – is now to be intended as the unity between the human element and the artifact “ship”. Consequently, for jurisdictional purposes, “ship” does not merely describe the object used for conducting navigation; conversely, *it describes navigation*.

In the final instance, following the reported ITLOS judgements, when using the term “ship”, it should be concluded that UNCLOS rules on maritime jurisdiction refer to the “factual paradigm for performing navigation”, *i.e.* the object-ship *and* the human component using it²⁰⁴.

b) The allocation of maritime jurisdiction

i) The regime of flag State jurisdiction: a theoretical reconstruction

Long before the contemporary configuration of the Law of the Sea, the use of ships has always been related to States²⁰⁵. Legally speaking, the performance of the activity of

²⁰³ STARITA M., *Il dovere di soccorso in mare e il “diritto di obbedire al diritto” (internazionale) del comandante della nave privata*, Diritti Umani e Diritto Internazionale, 2019, p. 23: «Il ricorso al termine nave fa capire che il ventaglio di privati al quale fanno riferimento le norme citate è significativamente ampio, comprendendo qualunque persona fisica o giuridica interessata dal punto di vista commerciale alla spedizione della nave, e tra questi, oltre che il proprietario e lo spedizioniere, proprio il comandante».

²⁰⁴ See note 198 of this chapter.

²⁰⁵ Historically, the analysis of the existence and of the content of the regime of flag State jurisdiction was discussed in the renowned *Muscat Dhows Case* (France v. Great Britain), PCA, Arbitral Award, 8 August 1905. On that occasion, the Parties submitted to the Permanent Court of Arbitration the question concerning the scope of France's right to grant subjects of the Sultan of Muscat the right to fly the French flag, and the privileges and immunities resulting therefrom. With regard to this issue, the

navigation reflects the existence of a connection bonding the ships and the States²⁰⁶. Traditionally, this legal nexus is called *nationality of the ship*, or, alternatively²⁰⁷, the regime of *flag State jurisdiction*.

The following pages will briefly report some of the principal theoretical conceptualizations of the institute of flag State jurisdiction, in order to introduce and facilitate the succeeding positive analysis of the UNCLOS rules in this regard.

In describing flag State jurisdiction, prof. O'Connell affirmed that:

«[a] ship is jurisdictionally connected with a State. That State's law is then the law of the flag»²⁰⁸.

This concise sentence effectively highlights two of the main features characterizing the legal institute of flag State jurisdiction: first, the use of ships is somehow related to the exercise of State powers; second, this "jurisdictional connection" is symbolized by the flag affixed to ships, a vexillum that has always been perceived as the:

«supreme emblem of sovereignty which international law authorises a ship to fly»²⁰⁹.

Tribunal ruled that: «it belongs to every Sovereign to decide to whom he will accord the right to fly his flag and to prescribe the rules governing such grants, and whereas therefore the granting of the French flag to subjects of His Highness the Sultan of Muscat in itself constitutes no attack on the independence of the Sultan».

²⁰⁶ LUCCHINI L.; VOELCKEL M., *Droit de la mer*, cit., p. 39: «Le régime de navigation que consacre le droit de la mer repose, en effet, essentiellement sur une relation d'État à État. C'est l'État qui est titulaire de la liberté conduit à reconnaître de larges compétences à l'État du pavillon. [...] le navire se définit d'abord et avant tout comme un engin évoluant en mer sous la responsabilité d'un État auquel il peut être rattaché par le lien de la nationalité et qui peut récouser toute ingérence d'un autre État».

²⁰⁷ CHURCHILL R. R.; LOWE A. V., *The Law of the Sea*, cit., p. 257: «expressions such as 'the State of registration' or 'the flag State' are synonyms for the State whose nationality the vessels bears».

²⁰⁸ O'CONNELL D. P., *The International Law of the Sea*, cit., p. 751.

²⁰⁹ *Constitution of the Maritime Safety Committee of the Inter-Governmental Maritime Consultative Organization*, Advisory Opinion, I.C.J. Reports 1960, dissenting opinion of Judge Quintana, p. 178. Similarly, according to MEYERS H., *The Nationality of Ships*, cit., p. 130, the flag is: «the symbol, present on the ship, which serves to disclose the allocation at distance». The symbolic value of the flag within the maritime culture is deepened by MANSELL J., *Flag State Responsibility*, cit., p. 13-15; ROUCOUNAS E., *Effectiveness of International Law for the Users of the Sea*, cit., p. 877. Notoriously, the flag has merely a symbolic value. In this regard, see *The "Enrika Lexie" Incident* (Italy v. India), cit., para. 1029: «A flag may thus be regarded as "visual evidence" or a "symbol" of nationality, but is not determinative for that vessel's nationality».

Again, it is interesting to report what was observed by O'CONNELL D. P., *The International Law of the Sea*, cit., p. 757: «The function of a ship's flag is that of identification, which includes attribution to a particular State. Provided that it is used in the circumstances in which identification is required, the flying of a flag need not be continuous, although it is the practice for it to be flown when in foreign national waters. In fact, the display of the ship's name and port of registry may serve the purpose of identification equally well, and, for visual reasons, often better than the flying of a flag, but the latter has a conventional

As noted in section 2(a), State jurisdictional powers are usually classified on the basis of which connection justifies the exercise of the State authority over a certain human activity. In this regard, it has been already enshrined the distinction occurring between *territorial* and *personal* jurisdiction: while the former deals with activities that are performed in a certain territory, the latter attributes jurisdiction to the State of nationality of the authors, independently of their location. Intuitively, the regime of flag State jurisdiction seems to have an ambivalent nature; since “ships” may be theoretically intended both as a physical place where human activities occur, or, at the same time, as a community of people at sea, the inclusion of flag State jurisdiction in both of the two mentioned categories looks potentially feasible. This dilemma stimulates intense debates concerning the logical foundations of flag State jurisdiction: experts were (and still are) divided whether this institute may be classified as territorial, personal, quasi-territorial, quasi-personal or not belonging to any of the reported categories.

In the classic age, the majority of scholars were of the view that the regime of flag State jurisdiction was based on territorial grounds. As it was affirmed by prof. Fiore, from a jurisdictional perspective, a ship is considered as:

«un’adiacenza del territorio dello Stato del quale porta la bandiera, e su cui esso esercita i diritti giurisdizionali la sovranità dello Stato del quale la nave è nazionale»²¹⁰.

Years later, in 1927, a similar position was adopted by the Permanent Court of International Justice in the renowned *Lotus case*²¹¹, where the Court was called to adjudge whether Turkey was empowered to exercise jurisdiction over the crew of the French vessel S.S. *Lotus*, since the seafarers had been involved in the shipwreck of a

symbolism which makes its displacement as the necessary index of national character unusual. If a ship is interrogated when not flying a flag it cannot be subjected to visit and search on the high seas unless it refuses to identify itself, and identification would include the hoisting of national colors». More recently in this regard, see *The “Enrika Lexie” Incident*, cit., para 1029.

²¹⁰ FIORE P., *Trattato di diritto internazionale pubblico*, cit., p. 399 (emphasis added). This position was largely supported by many others scholars of that ages. In this regard, see HAUTEFEUILLE L.B., *Des droits et des devoirs des nations neutres en temps de guerre maritime*, Vol. I, Paris, 1856; SCHMALZ M., *Le Droit des gens Européen*, Paris, 1823. More anciently, it is widely recognized the position of VATTTEL E., *Le droit des gentes, ou Principes de la loi naturelle, appliqués à la conduit et aux affaires des Nations et des Souverains*, Vol. I, Londres, 1758.

²¹¹ *The Case of the S.S. “Lotus”*, cit. (see note 20 of this chapter).

Turkish vessel that had caused the death of eight Turkish nationals. On that occasion, the PCIJ remarked that ships are to be:

«assimilated to the territory of the State the flag of which it flies, for, just as in its own territory, that State exercise its authority upon it, and no other State may do so»²¹².

As it can be noted from the reading of the reported quotations, the territorial theory is not based on a flat and specious declaration of identity between the object “ship” and the “land” territory; more finely, it assumes the validity of a *fictio iuris*²¹³, whose aim is to explain the operability of State sovereign powers even beyond the territory of a State, *i.e.* the most traditional and consolidated ground for justifying the exercise of State sovereignty²¹⁴.

Other authors have strongly criticized the mentioned theory²¹⁵. Alternatively, they were of the view that flag State jurisdiction finds its origins in the relationship between the flag State and the *community of people at sea*; in this respect, this regime follows a

²¹² *The Case of the S.S. “Lotus”*, cit., p. 25. More recently, see *The “Enrika Lexie” Incident* (Italy v. India), cit., para. 366: «The Arbitral Tribunal notes that such an extended territoriality principle is well established, and the domestic criminal legislation of a large number of States confers jurisdiction over offences committed on board national ships or aircraft».

²¹³ ILC, Report of Special Rapporteur Mr J.P.A. Francois, Doc. A/CN. 4/17, in YILC (1950), vol. II, p. 38: «Les choses se passent « comme si » le navire était territoire de l’Etat du pavillon. Mais elles ne se passent pas ainsi « parce que » le navires serait territoire de l’Etat du pavillon». In more recent times, see ZAMUNER E., *La tutela delle navi private nel diritto internazionale*, cit., p. 63: «L’analogia con il territorio è più che pertinente solo se si evita di considerarlo esclusivamente in una dimensione pubblicistica, alla stregua di un elemento costitutivo dello Stato, per muovere verso una concezione che guarda al territorio come ad uno (benché il principale) dei suoi ambiti di giurisdizione. Ciò che rende assimilabili la nave e il territorio non è la circostanza che essi condividano la stessa condizione giuridica internazionale, ma il fatto che essi rappresentino, in modi diversi, un ambito entro il quale lo Stato ha diritto di far valere la sua potestà di governo». Again, see DAVIES M., *Obligations and Implications for Ships Encountering Persons in Need of Assistance at Sea*, Washington International Law Journal, 2003, p. 117: «Territoriality is the principle that allows a state to have jurisdiction over conduct occurring on a ship flying the state's flag at sea, because of the legal fiction that the ship is an extension of the territory of the country whose flag it flies». In jurisprudence, very recently, see *The “Enrika Lexie” Incident* (Italy v. India), cit., para. 365: «[...] the Arbitral Tribunal does not consider that this principle amounts to assimilating a vessel with national territory “for all purposes” as if “a ship is a floating part of state territory [...]».

²¹⁴ VEZZANI S., *Jurisdiction in International Fisheries Law*, cit., p. 151: «the “territoire flottant” is a *fictio* that can be of use to describe an *analogy* existing between territorial jurisdiction *stricto sensu* and the legal authority of flag States over persons, properties and conduct on board national vessels».

²¹⁵ See JESSUP P., *The Law of Territorial Waters and Maritime Jurisdiction*, cit., p. 122: «Since a merchant vessel is not a floating portion of the flag state’s territory, acts committed on board such ships are acts done within the territory of the littoral state» (emphasis added). More recently, see LAGONI R., *Merchant Ships*, Max Planck Encyclopedia of International Law, 2011: «A ship is a movable chattel, it is not a territory that swims; and the flag State jurisdiction is so fundamentally different from territorial jurisdiction that it could hardly be assimilated to it».

personal (or quasi personal) criterion for the allocation of State jurisdiction²¹⁶. The presented theory poses particular attention to the fact that seafarers are located outside the extension of any State's territory. Therefore, since no territorial jurisdiction may be legitimately invoked – unless pretending to simulate the existence of a “floating territory” – it is more acceptable to retain that the allocation of State jurisdiction over their conducts is based on the personal criterion; according to these considerations, flag State jurisdiction is the regime regulating the activities of a *floating community of people* on board the ship²¹⁷. Contrarily to the territorial theory, which is fully polarized by the objective element of navigation (the object-ship), this approach is strongly based on the subjective one, *i.e.* the human component.

In between these two opposite sides, it stands the alternative (and less known) theory of *quasi-territorial* jurisdiction, according to which flag State jurisdiction is:

«the sum of the powers of a State in respect of ships, aircraft and spacecraft [...] having its nationality»²¹⁸.

Precisely, its supporters believe that this criterion:

«[...] differs from personal jurisdiction in that it extends not only to the craft in question but also to all persons and things on board, including activities of such persons, whether on board the craft or elsewhere»²¹⁹.

²¹⁶ This peculiar conceptualization has been strongly supported by Italian authors. Among them, it stands the work of QUADRI R., *Le Navi private nel diritto internazionale*, Milano 1939; GIULIANO M., *Diritto Internazionale*, cit.; LEANZA U., *Sulla condizione delle navi private nel diritto internazionale*, *Rivista del diritto della navigazione*, 1965, p. 157-159; MEYERS H., *The Nationality of Ships*, cit., p. 41. More recently, other renowned authors adopted this theory instead of the territorial one. See LOWE V., *International Law*, cit., OXMAN B., *Jurisdiction of States*, cit.; GAVOUNELI M., *Functional Jurisdiction in the Law of the Sea*, cit., p. 34.

²¹⁷ GIULIANO M., *Diritto Internazionale*, cit., p. 526: «la bandiera collegava virtualmente e non solo virtualmente la comunità umana, che a bordo delle navi viaggiava, con l'autorità sovrana di cui la bandiera era il simbolo esteriore. Nelle leggi poste da questa autorità, o comunque dall'ordinamento giuridico interno dello Stato della bandiera, trovava il suo fondamento l'organizzazione della vita della comunità navale, l'autorità e le mansioni dei preporti alla stessa, nonché il controllo, la protezione e le funzioni esercitate, nei confronti delle navi private, dalle navi da guerra e da altri agenti dello Stato di bandiera».

²¹⁸ CHENG B., *The Extra-Territorial Application of International Law*, cit., p. 135. More recently, this position is adopted by COGLIATI-BANTZ V.P., *Disentangling the “Genuine Link”: Enquiries in Sea, Air and Space Law*, *Nordic Journal of International Law*, 2010, p. 383-432.

²¹⁹ CHENG B., *The Extra-Territorial Application of International Law*, cit., p. 135.

Intuitively, all the reported theories logically depend from which definition of “ship” is taken into account: while the territorial approach mainly conceives “ship” as a place where human activities occur, the personal one retains “ship” as the community of people crossing the oceans; then, the quasi-territorial theory is specifically related to the concept of “ship” as a mean of maritime transport. All of them may look valid to some extents and inappropriate to some others. These theoretical reconstructions show their *relative* capacity to justify the normative existence of flag State jurisdiction: any of them, however, is capable to describe the multifaceted nature of the jurisdictional regime under study in an all-encompassing way.

Following the mentioned considerations, in accordance with other scholars²²⁰, it is here sustained that flag State jurisdiction has a *sui generis* nature, not coinciding with the territorial nor the personal jurisdiction. Once acknowledged that this regime is surely instrumental to connect the exercise of the activity of navigation to States, flag State jurisdiction is a peculiar criterion for allocating States’ sovereign powers that is founded neither on territorial nor personal grounds, but on *functional* grounds. In other words, assuming that the term “ship” is to be intended as the activity of “navigation” itself²²¹, it follows that *flag State jurisdiction is the legal regime connecting the flag State to the “ship”, intended as the “composite particle” performing navigation.*

According to this theory, there is no need to stress neither the “territorial” nor the “personal” nature of ships: instead, suffice it to say that flag State jurisdiction serves to frame the activity of navigation within the public international legal system, where States, and not ships²²², enjoy navigational rights²²³. Put differently, and conclusively, it

²²⁰ Among others, see HELMERSEN S., *The Sui Generis Nature of Flag State Jurisdiction*, Japanese Yearbook of International Law, 58, 2015, p. 319-335; ZAMUNER E., *La tutela delle navi private nel diritto internazionale*, cit., p. 75-77; BENNETT A., *The Sinking Feeling: Stateless Ships, Universal Jurisdiction, and the Drug trafficking Vessels Interdiction Act*, cit., p. 438; ANDERSON A., *Jurisdiction over Stateless Vessels on the High Seas: An Appraisal under Domestic and International Law*, Journal of Marine and Commercial Law, 1982, p. 338.

²²¹ See paragraph 3(a) of the present chapter.

²²² As synthetically observed in ROUCOUNAS E., *Effectiveness of International Law for the Users of the Sea*, cit., p. 877: «[...] the ship has a nationality [...] but not a legal personality». Again, see TREVES T., *Navigation*, in DUPUY R.J.; VIGNES D. (eds.), *A Handbook of the New Law of the Sea*, vol. 2, Dordrecht/Boston/Lancaster, 1991, p. 841: «The States themselves, and not the ships flying their flag, are entitled to claim not to suffer interference. Ships are nevertheless the means by which freedom of navigation is exercised and the objects through which States are entitled to assert their various claims». In this regard, however, it must be recalled the ITLOS has partially admitted that some UNCLOS may consider “ships” as international subjects. Precisely, see what stated in the *M/V “Virginia”*, cit., para. 156: «The Tribunal further notes that in some of the provisions referred to by Panama, however, rights appear

is not the “place” where navigation occurs nor the nationality of the human component that justify the existence of flag State jurisdiction. Of course, these criteria have a certain jurisdictional relevance even in the maritime context. Indeed, for what concerns the spatial criterion, it surely founds the coastal State jurisdictional powers over ships. Then, the principle of personality connects a State and the seafarers who are its nationals²²⁴. However, neither of the two elements justifies the existence of the regime of flag State jurisdiction.

Instead, the position of this author is that *the performance of the activity of navigation itself is the jurisdictional link between the ship and the flag State*²²⁵. Indeed, since the UNCLOS grants the right of exercising navigation directly to States²²⁶, it logically derives that their jurisdiction shall extend over “their ships”, which are, from this perspective, the particles giving shape to the State’s right of freedom of navigation²²⁷.

to be conferred on a ship or persons involved». Years before, this position was proposed by Judge Wolfrum in its separate opinion with regard to the *Saiga case* (see separate opinion, paras. 46-55).

²²³ UNCLOS, art. 90: «Every State, whether coastal or land-locked, has the right to sail ships flying its flag on the high seas».

²²⁴ In this regard, it is important to recall the ILC, *Draft Articles on Diplomatic Protection*, 2006, art. 18: «The right of the State of nationality of the members of the crew of a ship to exercise diplomatic protection is not affected by the right of the State of nationality of a ship to seek redress on behalf of such crew members, irrespective of their nationality, when they have been injured in connection with an injury to the vessel resulting from an internationally wrongful act». In scholarship, see VEZZANI S., *Jurisdiction in International Fisheries Law*, cit., p. 32 and 180; DRENAN, M. T., *Gone overboard: Why the arctic sunrise case signals an over-expansion of the ship-as-a-unit concept in the diplomatic protection context*, cit.

²²⁵ BARNES R., *Flag States*, cit., p. 311.

²²⁶ ZWINGE T., *Duties of Flag States to Implement and Enforce International Standards and Regulations - And Measures to Counter Their Failure to Do So*, cit., p. 298: «Ships themselves cannot incur responsibilities by international law as they are not subjects of international law. It is instead the flag State who bears the duty to comply with international law. Ships therefore merely derive their rights and obligations from the States whose nationality they have». On the same view, see GAVOUNELI M., *Functional Jurisdiction in the Law of the Sea*, cit., p. 34.

²²⁷ ZAMUNER E., *La tutela delle navi private nel diritto internazionale*, cit., p. 76: «quelle norme sembrano indicare chiaramente come, nella prospettiva del diritto internazionale, la nave privata venga in rilievo come primo e autonomo oggetto di valutazione delle norme internazionali in tanto in quanto sia un mezzo autorizzato ad avvalersi, sotto il controllo dello Stato di bandiera, del diritto di navigazione marittime riconosciuto a tutti gli Stati. Pertanto, la giurisdizione sulle navi private è sì *funzionale*, ma al pieno godimento del diritto soggettivo di navigazione dello Stato di bandiera» (emphasis added).

ii) Granting the nationality to ships

Once exhausted the theoretical digression about the regime of flag State jurisdiction, it is now intended to analyze more in detail the existing legal framework configuring the relationship between the flag State and its national vessels. As it has been already anticipated, this field is largely codified by Part VII of UNCLOS²²⁸.

Starting from the genetic moment of the granting the nationality to ships²²⁹, UNCLOS conceives this process as a *prerogative of States*²³⁰. Accordingly, art. 91,1 declares that:

«Every State shall fix the conditions for the grant of its nationality to ships, for the registration of ships in its territory, and for the right to fly its flag. Ships have the nationality of the State whose flag they are entitled to fly. There must exist a genuine link between the State and the ship»²³¹.

International Law does not define nor set any requirement for the performance of this procedure of domestic law²³².

Traditionally, States are used to grant their nationality to ships through the process of *registration*²³³, here defined as:

²²⁸ As known, UNCLOS confirmed for the majority what already codified by the Convention on the High Seas of 1958, whose regulatory content was in turn based on the ILC, *Articles Concerning the Law of the Sea* of 1956.

²²⁹ MEYERS H., *The Nationality of Ships*, cit., p. 122: «Every state has with respect to its ship-users the bundle of international rights and duties [...]. How then did those ship-users become that state's? They became such as the result of the fact that it immatriculated them, i.e. assumed authority over them, while satisfying the conditions laid down to that effect by international law».

²³⁰ ANDERSON A., *Jurisdiction over Stateless Vessels on the High Seas: An Appraisal under Domestic and International Law*, cit., p. 339-340; MCDUGAL M., *The Maintenance of Public Order at Sea and the Nationality of Ships*, cit., p. 27. Recently, in jurisprudence, see *The "Enrika Lexie" Incident* (Italy v. India), cit., para. 1022.

²³¹ UNCLOS, art. 91,1. NORDQUIST M.; NANDAN S.; ROSENNE S., *United Nations Convention on the Law of the Sea 1982, Commentary*, Vol. III, cit., p. 106: «Paragraph 1 [of art. 91] requires every State to fix conditions for the grant of its nationality to ships, but imposes no further specific requirements in that respect, this being left to the discretion of the individual State».

²³² *Muscat Dhows Case* (France v. Great Britain), cit.: «it belongs to every Sovereign to decide to whom he will accord the right to fly his flag and to prescribe the rules governing such grants». To more in this regard, see CHURCHILL R. R.; LOWE A. V., *The Law of the Sea*, cit., p. 257; GIULIANO M., *Diritto Internazionale*, cit., p. 532. In this regard, flag State jurisdiction follows a general principle of International Law, according to which States are free in granting the status of nationality to individuals and, as noted, also to ships. As known, the International Court of Justice addressed this issue in the renowned *Nottebohm Case* (Liechtenstein v. Guatemala), Judgement, I.C. J. Reports, 1955, p. 20, declaring that: «It is for Liechtenstein, as it is for every sovereign State, to settle by its own legislation the rules relating to the acquisition of its nationality, and to confer that nationality by naturalization granted by its own organs in accordance with that legislation».

«the recording, on land and under the supervision of a government body, of the allocation of the users of a given ship, this with a view to the cognoscibility and the demonstrableness of that allocation»²³⁴.

However, it is not always true that the mere registration of a ship will necessarily lead to the establishment of flag State jurisdiction²³⁵. As many times remarked by ITLOS, granting the nationality to a ship is «a question of fact»²³⁶. In this regard, art. 91,1 of UNCLOS does not set any specific international legal requirement; it leaves States substantially free in determining the criteria for granting their nationality to ships.

Having said this, however, it must be recalled that the already-mentioned UNCLOS provision imposes on States to guarantee the existence of a *genuine link* between them and the ships flying their flag. The meaning to give to this locution has been intensively studied in scholarship, in order to understand whether the existence of the genuine link should be considered or not as a prerequisite for the recognition of the nationality of ships.

In 1955, in a case concerning the granting of nationality to individuals (*Nottebohm Case*), the ICJ observed that the existence of a genuine link is to be intended as a *prerogative* for the creation of the legal nexus of citizenship between a State and physical persons²³⁷. Intuitively, what was declared by the Court strongly influenced the succeeding drafting of the ILC *Articles Concerning the Law of the Sea* of 1956. Accordingly, art. 29 of that project declared that:

²³³ International Load Line Convention, 1930 (ratified by 53 States, later substituted by the Load Lines Convention of 1966), art. 3(a): «un navire est considéré comme appartenant à un pays s'il est immatriculé par le gouvernement de ce pays».

²³⁴ MEYERS H., *The Nationality of Ships*, cit., p. 129. For a more technical analysis of the process of registration, see MANSELL J., *Flag State Responsibility*, cit., p. 25-36. Furthermore, it is to be added that States are not obliged by International Law to register ships. On that occasion, a ship without nationality is not under flag State jurisdiction. However, this peculiar situation precludes States not to pretend that other States shall abstain from interfering with the navigation of ships without nationality. In this regard, see GIULIANO M., *Diritto Internazionale*, cit., p. 532.

²³⁵ *The "Enrika Lexie" Incident*, cit., para 1022.

²³⁶ *M/V "Saiga"* cit., para 66. This topic has been also addressed by ITLOS in other, more recent occasions. See *M/V "Louisa"* (Saint Vincent and the Grenadines v. Kingdom of Spain), Judgment, ITLOS Reports 2013, para. 86-87; *"Grand Prince"* (Belize v. France), Prompt Release, Judgment, ITLOS Reports, 2001, para. 83-94;

²³⁷ *Nottebohm Case*, cit., p. 23: «nationality is a legal bond having as its basis a social fact of attachment, a genuine connection of existence, interests and sentiments, together with the existence of reciprocal rights and duties». The issue concerning formal and genuine requirements for the granting of nationality is analyzed by VERMEER-KÜNZLI A., *Nationality and Diplomatic Protection*, in ANNONI A.; FORLATI S. (eds.), *The Changing Role of Nationality in International Law*, Oxon, 2013, p. 77-80.

«Ships have the nationality of the State whose flag they are entitled to fly. Nevertheless, *for purposes of the recognition of the national character of the ship by other States*, there must exist a genuine link between the State and the ship»²³⁸.

However, the content of the reported provision was modified during the negotiations of the Convention on the High Seas²³⁹. In fact, art. 5 of the Convention does not clarify whether the existence of the genuine link is *necessary* for the purposes of the recognition of the nationality of ships. More cryptically, it limitedly says that:

«There must exist a genuine link between the State and the ship; in particular, the State must effectively exercise its jurisdiction and control in administrative, technical and social matters over ships flying its flag»²⁴⁰.

In 1960, in expressing his dissenting position with regard to the ICJ advisory opinion concerning the *Constitution of the Maritime Safety Committee of the Inter-Governmental Maritime Consultative Organization*²⁴¹, Judge Quintana declared the customary nature of this rule. Some years later, then, art. 91,1 of UNCLOS reiterated the use of the locution “genuine link” following what provided in art. 5 of the Convention on the High Seas. In this regard, the absence of any further normative explanations left quite unsolved the question regarding its specific normative content.

In 1999, this topic was addressed by ITLOS in the *Saiga case* (n.2), where the Tribunal was called to decide whether there was a genuine link between the flag State of San Vincent and Grenadines and the vessel *Saiga*²⁴². On that occasion, ITLOS recognized that, according to UNCLOS, the existence of the genuine link must not be

²³⁸ ILC, *Articles Concerning the Law of the Sea*, art. 5,1 (emphasis added).

²³⁹ Furthermore, the idea of considering the genuine link as a requirement for the granting of nationality was confirmed by the ICJ in the case concerning *Barcelona Traction, Light and Power Company, Limited* (Belgium v. Spain) Judgment, I.C.J. Reports 1970, para. 90.

²⁴⁰ Convention on the High Seas, art. 5. For an outstanding analysis of this provision, see McDOUGAL M., *The Maintenance of Public Order at Sea and the Nationality of Ships*, cit.

²⁴¹ *Constitution of the Maritime Safety Committee of the Inter-Governmental Maritime Consultative Organization*, cit., dissenting opinion of judge Quintana, p. 178: «The registration of shipping by an administrative authority is one thing, the ownership of a merchant fleet is another. The latter reflects an international economic reality which can be satisfactorily established only by the existence of a genuine link between the owner of a ship and the flag it flies. This is the doctrine expressed by Article 5 of the Convention on the High Seas which was signed at Geneva on 29 April 1958 by all the eighty-six States represented at the Conference that drew it up. This provision, by which international law establishes an obligation binding in national law, constitutes at the present time the *opinio juris gentium* on the matter».

²⁴² For a summary of the case, see section 3(a) of the present chapter.

intended as a prerequisite for the granting of the nationality of ships, but merely *as the duty of the flag State to implement a certain level of control over its ships*. Precisely:

«[...] the purpose of the provisions of the convention on the need for a genuine link between a ship and its flag State is to secure more effective implementation of the duties of the flag State, and not to establish criteria by reference to which the validity of the registration of ships in a flag State may be challenged by other States»²⁴³.

The conclusion reached by the Tribunal confirms that States are essentially free in granting their nationality to ships, regardless of the existence of a genuine link. Accordingly, this requirement is not a condition for the operability of the regime of flag State jurisdiction²⁴⁴; on the contrary, it is (just) a duty pending upon the flag State to effectively keep a degree of control over the conducts of ships flying its flag, incoherence with the requirements provided by art. 94 of UNCLOS²⁴⁵. Consequently, the eventual absence of a genuine link merely gives rise to the responsibility of the flag

²⁴³ *M/V “Saiga”* cit., para. 83. For a panoramic on ITLOS decisions and this issue, see JESUS J.L., *The Tribunal’s Jurisprudence and its Contribution to the Rule of Law*, in International Tribunal for the Law of the Sea (ed.), *The Contribution of the International Tribunal for the Law of the Sea to the Rule of Law: 1996-2016*, Leiden, 2018, p. 39-40.

²⁴⁴ This position has been authoritatively promoted by MEYERS H., *The Nationality of Ships*, cit., p. 275, according to which: «the maintenance of a “genuine link” is not only a precept, but at the same time a condition for the existence of the international rights and duties of a state which are here called allocation of “ships”». More recently, see WHOMERSLEY C., *The Principle of Exclusive Flag State Jurisdiction: Is it Fit for Purpose in the Twenty-First Century?*, Asia-Pacific Journal of Ocean Law and Policy, 2020, p. 332. Adopting a critical thought on the position adopted by ITLOS in this regard, professor Scovazzi argued that: «[...] the Tribunal missed a unique opportunity to provide a major contribution to the progressive development of international law of the sea» (SCOVAZZI T., *The Contribution of the Tribunal to the Progressive Development of International Law*, in International Tribunal for the Law of the Sea (ed.), *The Contribution of the International Tribunal for the Law of the Sea to the Rule of Law: 1996-2016*, cit., p. 153).

²⁴⁵ SCOVAZZI T., *Human Rights and Immigration at Sea*, cit., p. 227: «under the logic of UNCLOS, the obligation to ensure a genuine link between a state and ships flying its flag is also to be understood in the light of the capacity and willingness of this state to exercise effective control in administrative, technical, and social matters relating to the ships».

State for having breached International Law²⁴⁶, without causing the lack of the jurisdictional connection between that ship and its State of nationality²⁴⁷.

In conclusion, it must be added that, in the case that a ship does not fly the flag of any State, it is considered a *ship without nationality*²⁴⁸ (or *stateless ship*). As it will be better noted below²⁴⁹, this condition – strongly detrimental to the “physiological” configuration of the jurisdictional balance at sea²⁵⁰ – excludes the applicability of the protection granted by the flag State to the vessel²⁵¹.

c) The regulation of jurisdiction over ships: analysis of the hendiadys of the criteria of “flag” and “space”

In compliance with what has been observed until now, the allocation of Statepowers over maritime human activities strongly depends on where they occur. Contextually, it has been already noted that even the nationality of ships plays a pivotal role in this normative field. To sum up, the contemporary configuration of the jurisdictional balance over the activity of navigation is to be distilled through the analysis of the crossing relation existing between these two criteria, the *space* and the *flag*. Furthermore, the presented legal framework is made even more complex by the fact that the exercise of different types of State sovereign powers (prescriptive or

²⁴⁶ Quite surprisingly, this violation of International Law determines the application of a particular set of secondary norms, and not of the general rules on State responsibility, as codified by the ILC draft articles on State responsibility of 2001. Indeed, according to art. 94,6 of UNCLOS: «A State which has clear grounds to believe that proper jurisdiction and control with respect to a ship have not been exercised may report the facts to the flag State. Upon receiving such a report, the flag State shall investigate the matter and, if appropriate, take any action necessary to remedy the situation». These considerations are analyzed by MUSSI F., *Verso una disciplina internazionale dell'immigrazione via mare: il ruolo dell'Italia*, PhD Thesis, 2016; p. 62-63; SCOVAZZI T., *The Evolution of International Law of the Sea*, cit., p. 221-222.

²⁴⁷ COGLIATI-BANTZ V.P., *Disentangling the “Genuine Link”*, cit. p. 410.

²⁴⁸ This locution is adopted by the UNCLOS in its articles 92,2 and 110,1(d).

²⁴⁹ See section 3(c)(iv) of this chapter.

²⁵⁰ ANDERSON A., *Jurisdiction over Stateless Vessels on the High Seas: An Appraisal under Domestic and International Law*, cit., p. 335.

²⁵¹ To more in this regard, among others, see BARNES R., *Flag States*, cit., p. 310; BENNETT A., *The Sinking Feeling: Stateless Ships, Universal Jurisdiction, and the Drug trafficking Vessels Interdiction Act*, cit., p. 438; CHURCHILL R.R.; LOWE A.V., *The Law of the Sea*, cit., p. 213-214; LUCCHINI L.; VOELCKEL M., *Droit de la mer*, cit., p. 81-82; ANDERSON A., *Jurisdiction over Stateless Vessels on the High Seas: An Appraisal under Domestic and International Law*, cit.; MCDUGAL M., *The Maintenance of Public Order at Sea and the Nationality of Ships*, cit., p. 76-77.

enforcement jurisdiction) are regulated by different international rules. For all these reasons, the present section will observe the graduation of the regime of flag State jurisdiction depending on the specific marine zone where navigation occurs, also taking into consideration the differences occurring between the regulation of prescriptive and enforcement jurisdiction over the activity of navigation. Finally, the last pages of this section will briefly outline the peculiar allocation of State jurisdiction over ships without nationality.

i) Jurisdiction over ships on the high seas

Starting from the analysis of navigation occurring on the high seas, UNCLOS sets a general rule, according to which:

«Ships shall sail under the flag of one State only and, save in exceptional cases expressly provided for in international treaties or in this Convention, *shall be subject to its exclusive jurisdiction on the high seas*»²⁵².

As it is widely known, art. 92,1 of UNCLOS provides the customary *principle of the exclusivity of flag State jurisdiction on the high seas*²⁵³. According to this rule, always acting in full respect «the interests of other States»²⁵⁴, flag States are the sole holders of jurisdictional rights over navigation on the high seas²⁵⁵. This conclusion is

²⁵² UNCLOS, art. 92,1 (emphasis added). In scholarship, the concept of freedom of the High Seas is authoritatively analyzed by ANDERSON D., *Freedoms of the High Seas in the Modern Law of the Sea*, in FREESTONE D.; BARNES R.; ONG D. (eds.), *The Law of the Sea. Progress and Prospects*, New York, 2006, p. 327-346.

²⁵³ The current configuration of art. 92,1 of UNCLOS is based on the very same wording provided by art. 6 of the Convention on the High Seas, which, in turn, reiterated the text of the draft article 30 of the ILC project of 1956. In this regard, it is interesting to read what retained by the special Rapporteur Francois: «Tout l'Etat a le droit d'exercer son autorité sur les navires battant son pavillon. L'absence de souveraineté territoriale en haute mer ne permet d'appliquer au navire naviguant en haute mer que l'ordre juridique de l'Etat dont il bat le pavillon» (ILC, Report of Special Rapporteur Mr J.P.A. Francois, Doc. A/CN. 4/17, in YILC (1950), vol. II, p. 38).

²⁵⁴ UNCLOS, art. 87,2.

²⁵⁵ *Lotus case*, cit., p. 25: «It is certainly true that – apart from certain special cases which are defined by international law – vessels on the high seas are subject to no authority except that of the State whose flag they fly. In virtue of the principle of the freedom of the sea, that is to say, the absence of any territorial sovereignty upon the high seas, no State may exercise any kind of jurisdiction over foreign vessels upon them». Again, see ROUCOUNAS E., *Effectiveness of International Law for the Users of the Sea*, cit., p. 917.

confirmed by the joint reading of art. 97 of UNCLOS, according to which non-flag States shall not exercise criminal jurisdiction over seafarers in case of incidents of navigation on the high seas²⁵⁶.

In the last few years, the issue concerning the content of the principle of exclusivity of flag State jurisdiction has been largely debated. Precisely, it is disputed whether art. 92,1 of UNCLOS limitedly deals with the allocation of the jurisdiction of enforcement or if it further comprehends the exercise of prescriptive jurisdiction²⁵⁷.

In this regard, what has been recently declared by the ITLOS in the *Norstar case* stands for relevance. In 2019, the International tribunal was called to adjudge and declare whether Italy, by issuing the decree of seizure against the M/V *Norstar* for the conduction of bunkering activities on the high seas, breached the freedom of navigation which Panama, the flag State of the oil tanker, enjoyed under art. 87,1 of UNCLOS²⁵⁸.

²⁵⁶ UNCLOS, art. 97,1: «In the event of a collision or any other incident of navigation concerning a ship on the high seas, involving the penal or disciplinary responsibility of the master or of any other person in the service of the ship, no penal or disciplinary proceedings may be instituted against such person except before the judicial or administrative authorities either of the flag State or of the State of which such person is a national». For an in-depth analysis of this provision, see CANNONE A., *L'interpretazione della espressione "altri incidenti di navigazione" di cui all'art. 97 della Convenzione sul diritto del mare nella sentenza arbitrale del 21 maggio 2020 relativa alla vicenda della Enrica Lexie (Italia c. India)*, Ordine Internazionale e Diritti Umani, 2021, p. 283-291; FARNELLI G.M., *Back to Lotus: a Recent Decision by the Supreme Court of India on an Incident of Navigation in the Contiguous Zone*, International Community Law Review, 2014, p. 112-115.

²⁵⁷ Scholars are divided in this regard. According to some authors, the principle of exclusivity of flag State jurisdiction includes both prescriptive and enforcement powers. From this perspective, among many others, see D. KONIG, *Flag of Ships*, Max Planck Encyclopedia of Public International Law, 2009: «On the high seas, vessels are subject to the exclusive jurisdiction and control of the flag State. This rule of customary International Law is codified in Article 92 (1) UN Convention on the Law of the Sea. As a rule, other States have no right to exercise prescriptive, enforcement, and adjudicative jurisdiction over foreign ships». On the same advice, see R.R. CHURCHILL, A.V. LOWE, *The Law of the Sea*, cit., p.208- 209: «In general, the flag State [...] has the exclusive right to exercise legislative and enforcement jurisdiction over its ships on the high seas». Again, and more anciently, see MEYERS H., *The Nationality of Ships*, cit., p. 52-56. However, there are even many other authoritative authors that oppose the above- mentioned position. Among others, see G. GIDEL, *Le droit international public de la mer: le temps de paix*, vol. I (1932), p. 261. Again, see GIULIANO M., *Diritto Internazionale*, cit., p. 543: «la norma internazionale generale che provvede alla delimitazione dell'autorità degli Stati in alto mare si riferisce esclusivamente ad attività materiali, ad interferenze materiali, esplicabili in alto mare [...]». In recent times, on the same view, see VEZZANI S., *Jurisdiction in International Fisheries Law*, cit., p. 155; HONNIBALL A., *The Exclusive Jurisdiction of Flag States: A Limitation on Pro-active Port States*, Journal of Maritime and Coastal Law, 2016, p. 499-530; CASSESE A., *Diritto Internazionale*, Bologna, 2006, p. 88. In conclusion, it must be added that this topic was at the base of the request of Spain, the applicant in the proceeding before the International Court of Justice on *Fisheries Jurisdiction* (Spain v. Canada), Jurisdiction of the Court, Judgment, I.C.J. Reports, 1998. However, the Court, declining its jurisdiction, did not address the substantial issue at the base of the dispute.

²⁵⁸ The *Norstar case* is in depth analyzed by BECKER-WEINBERG V., *The M/V "Norstar" Case (Panama v. Italy)*, Il Diritto Marittimo, 2019, p. 760-766; ZAMUNER E., *Giurisdizione penale dello Stato costiero e libertà di navigazione in alto mare: in margine alla sentenza del Tribunale internazionale del diritto del mare nel caso «Nortsar»*, Rivista di Diritto Internazionale, 2019, p. 819-827.

On that occasion, the slight majority of the judges composing the panel opted for an extensive interpretation of art. 92,1 of UNCLOS, according to which:

«This principle prohibits not only the exercise of enforcement jurisdiction on the high seas by States other than the flag State *but also the extension of their prescriptive jurisdiction* to lawful activities conducted by foreign ships on the high seas»²⁵⁹.

On the very opposite direction, through a joint dissenting opinion, a large minority of judges strongly criticized what was decided by the their colleagues, observing that:

«[...] nothing in the text of the Convention, in its travaux préparatoires, in other international treaties, in customary international law, or in the practice of States suggests that article 87 and its corollary article 92 altogether excludes the right of non- flag States to exercise their prescriptive criminal jurisdiction with respect to activities on the high seas»²⁶⁰.

In the author's view, between the two opposite positions, the latter is to be preferred. In fact, from a systematic perspective, this interpretation appears to be in full harmony with the rest of UNCLOS provisions²⁶¹. Indeed, remembering that art. 92,1 of UNCLOS declares that the principle understudy operates «*save in exceptional cases expressly provided [...] this Convention*», it must be underlined that the exceptions explicitly provided by UNCLOS merely deal with the jurisdiction of enforcement²⁶². Precisely, all rules granting non-flag States specific jurisdictional powers over foreign

²⁵⁹ *M/V "Norstar"* (Panama v. Italy), cit., para. 225. One year later, the same position was also adopted by the Permanent Court of Arbitration in *The "Enrika Lexie" Incident* (Italy v. India), cit., paras. 524-527 (emphasis added).

²⁶⁰ *M/V "Norstar"* (Panama V. Italy), Judgement, ITLOS Report, 2019, Joint Dissenting Opinion of Judges Cot, Pawlak, Yanai, Hoffmann, Kolodkin and Lijnzaad and Judge Ad Hoc Treves, para. 19. In scholarship, a similar position has been assumed by WHOMERSLEY C., *The Principle of Exclusive Flag State Jurisdiction: Is it Fit for Purpose in the Twenty-First Century?*, cit, p. 346: «the judgment of the majority seems to elevate a rather theoretical approach over a dynamic, teleological interpretation, fit for the twenty-first century, of the principles of freedom of navigation and flag State jurisdiction. The decision does not seem to accord with the view of losc as a "living treaty," and disappointingly, the opportunity seems to have been missed to move the law into a more modern mode».

²⁶¹ MANDRIOLI D., *Oltre i limiti territoriali: l'esercizio della giurisdizione penale italiana sul traffico di armi in acque straniere*, Il Diritto Marittimo, 2021, p. 362-367. On the same advice, see PAPANICOLOPULU I., *International Law and the Protection of People at Sea*, cit., p. 82: «Building on the material and legal fact that most of the sea cannot be subjected to the sovereignty of a State to the exclusion of all other States, the basic purpose of this branch of law has been to allocate power among States in a space that was open to dual or multiple utilization by more than one State at the same time».

²⁶² BEVILACQUA G., *Criminalità e sicurezza in alto mare*, Napoli, 2018, p. 38-40.

ships on the high seas (art. 105, dealing with piracy²⁶³, art. 109,4, concerning unauthorized broadcasting²⁶⁴, art. 110, regulating the right of visit²⁶⁵, and art. 111, setting the rule of hot pursuit²⁶⁶) set exemptions concerning the powers of States to *enforce executive actions over foreign ships*. Beyond that:

«Article 92 is simply silent on non-flag state prescription»²⁶⁷.

Consequently, since «[r]estrictions upon the independence of States cannot [...] be presumed»²⁶⁸, this normative “silence” looks far from justifying an extensive interpretation of the principle under attention²⁶⁹.

Furthermore, even the analysis of State practice seems to confirm the correctness of the adopted position. Precisely, it must be highlighted the expansive role assumed in recent times by *port States* in exercising prescriptive jurisdiction with regard to vessel operations performed beyond the territorial waters.

²⁶³ UNCLOS, art. 105: « On the high seas, or in any other place outside the jurisdiction of any State, every State may seize a pirate ship or aircraft, or a ship or aircraft taken by piracy and under the control of pirates, and arrest the persons and seize the property on board. The courts of the State which carried out the seizure may decide upon the penalties to be imposed, and may also determine the action to be taken with regard to the ships, aircraft or property, subject to the rights of third parties acting in good faith.»

²⁶⁴ UNCLOS, art. 109,4: «On the high seas, a State having jurisdiction in accordance with paragraph 3 may, in conformity with article 110, arrest any person or ship engaged in unauthorized broadcasting and seize the broadcasting apparatus».

²⁶⁵ UNCLOS, art. 110,1: «[...] a warship which encounters on the high seas a foreign ship [...] is not justified in boarding it unless there is reasonable ground for suspecting that: (a) the ship is engaged in piracy; (b) the ship is engaged in the slave trade; (c) the ship is engaged in unauthorized broadcasting and the flag State of the warship has jurisdiction under article 109; (d) the ship is without nationality; or (e) though flying a foreign flag or refusing to show its flag, the ship is, in reality, of the same nationality as the warship».

²⁶⁶ UNCLOS, art. 111,1: «The hot pursuit of a foreign ship may be undertaken when the competent authorities of the coastal State have good reason to believe that the ship has violated the laws and regulations of that State. Such pursuit must be commenced when the foreign ship or one of its boats is within the internal waters, the archipelagic waters, the territorial sea or the contiguous zone of the pursuing State, and may only be continued outside the territorial sea or the contiguous zone if the pursuit has not been interrupted. It is not necessary that, at the time when the foreign ship within the territorial sea or the contiguous zone receives the order to stop, the ship giving the order should likewise be within the territorial sea or the contiguous zone. If the foreign ship is within a contiguous zone, as defined in article 33, the pursuit may only be undertaken if there has been a violation of the rights for the protection of which the zone was established».

²⁶⁷ HONNIBALL A., *The Exclusive Jurisdiction of Flag States: A Limitation on Pro-active Port States*, cit., p. 521.

²⁶⁸ With regard to the renowned “Lotus principle”, see note 21 of the present chapter.

²⁶⁹ On the same view see PAPASTAVIDRIS E., *The European Convention of Human Rights and Migration at Sea: Reading the “Jurisdictional Threshold” of the Convention Under the Law of the Sea Paradigm*, German Law Journal, 2020, p. 428.

With the locution “port State jurisdiction”, this study refers to the sovereign powers exercised by a State in whose port the ship has docked²⁷⁰. Intuitively, since ports are located within internal waters, States enjoy full jurisdiction over ships placed in there²⁷¹. While not in detail regulating the regime of port State jurisdiction, many UNCLOS rules explicitly acknowledge its existence²⁷².

In the last decades, the recourse to port State jurisdiction measures has largely increased to face the “deficiencies” of flag State jurisdiction²⁷³. Through the conclusion of international treaties²⁷⁴ and memoranda of understanding²⁷⁵, port States are progressively expanding their jurisdictional powers for what concerns the navigation of

²⁷⁰ For a doctrinal analysis of this topic, among many others, see VEZZANI S., *Jurisdiction in International Fisheries Law*, cit., p. 267-298; MARTEN B., *Port State Jurisdiction, International Conventions, and Extraterritoriality: An Expansive Interpretation*, in H. RINGBOM (ed.), *Jurisdiction over Ships*, Leiden, 2017, p. 105-139; HONNIBALL A., *The Exclusive Jurisdiction of Flag States: A Limitation on Pro-active Port States*, cit.; RYNGAERT C.; RINGBOM H., *Port State Jurisdiction Challenges and Potential*, *International Journal of Marine and Coastal Law* 31, 2016, p. 379-394; MARTEN B., *Port State Jurisdiction and the Regulation of Merchant Shipping*, Cham, 2013; MOLENAAR E., *Port State Jurisdiction*, *Max Planck Encyclopedia of Public International Law*, 2010; see D. KONIG, *Flag of Ships*, cit.; GAVOUNELI M., *Functional Jurisdiction in the Law of the Sea*, cit., p. 44-49; MOLENAAR E., *Port State Jurisdiction: Towards Mandatory and Comprehensive Use*, in FREESTONE D.; BARNES R.; ONG D. (eds.), *The Law of the Sea. Progress and Prospects*, cit., p. 192-209.

²⁷¹ *Military and Paramilitary Activities in and against Nicaragua*, cit., para. 213.

²⁷² Precisely, art. 218, dealing with State jurisdictional powers over maritime pollution activities, specifies port States enforcement powers over ships within their ports. Moreover, art. 25 of UNCLOS is constantly read as a demonstration of the acceptance given by UNCLOS to the regime of Port State Jurisdiction.

²⁷³ MUNARI F., *Migrazioni SAR, ruolo e responsabilità delle ONG, degli Stati e dei funzionari delle competenti amministrazioni*, *Il Diritto Marittimo*, 2020, p. 338: «in decenni di crescente attuazione della giurisdizione dello Stato del porto, e grazie anche alle regole sull’abbordo delle navi [...] norme e standard via via più stringenti hanno reso sempre più sicure le navi, e più severi i controlli effettuati in sede di Port State Control sulle stesse prima della loro partenza». Again, see WHOMERSLEY C., *The Principle of Exclusive Flag State Jurisdiction: Is it Fit for Purpose in the Twenty-First Century?*, cit., p. 333-336; RYNGAERT C.; RINGBOM H., *Port State Jurisdiction Challenges and Potential*, cit., p. 385. With regard to the issue concerning the deficiencies of flag State jurisdiction, see the section 3(d) of the present chapter.

²⁷⁴ Precisely, beyond many other treaties (among which it stands the SOLAS), we refer to the MARPOL convention. Indeed, as widely known, the latter set obligations over every party to the convention and not limitedly flag States. As affirmed in its art. 4,2: «any violations [...] within the jurisdiction of any Party to the Convention shall be prohibited». See MANDRIOLI D., *Una nuova regola internazionale sul contenuto di zolfo nel carburante delle navi: analisi della recente riforma “IMO 2020”*, cit., p. 83. With regard to fishing, see also the FAO Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, 2009 (entered into force in 2016, currently signed by 69 States).

²⁷⁵ Among many relevant instruments, stand for relevance the 1982 *Paris Memorandum of Understanding on Port State Control* (to date 27 States belonging to the European and North Atlantic regions are part of this legal instrument); 2009 *Port State Measures Agreement to Prevent, Deter, and Eliminate Illegal, Unreported, and Unregulated Fishing* and the 2018 *Memorandum of Understanding on Port State Control in the Asia-Pacific Region*. For an analysis on the legal relevance of MOU in International Law of the Sea, see MCDORMAN T. L., *Regional Port State Control Agreements: Some Issues of International Law*, *Ocean & Coastal Law Journal*, 2000, p. 207-226; ROUCOUNAS E., *Effectiveness of International Law for the Users of the Sea*, cit., p. 913-914.

foreign ships on the high seas, challenging the pretense of exclusivity of flag States²⁷⁶. With regard to this evolving scenario, some experts are of the view that the reported State practice is going to erode the principle of exclusivity of flag State jurisdiction on the high seas even for what concerns the exercise of enforcement powers over ships²⁷⁷. In any case, with exclusive regard to the issue here addressed, the expansion of port States' role occurring in these years seems to confirm, at least, the validity of the reported restrictive interpretation of art. 92,1 of UNCLOS, pursuant to which the exercise of prescriptive jurisdiction on the high seas is not precluded to non-flag States.

ii) Jurisdiction over ships in the EEZ, in waters over the continental shelf and in the contiguous zone

Shifting now the attention on the portions of waters in between the high seas and the territorial sea, the exclusivity of flag State jurisdiction over ships is subject to a gradual declination depending on the specific marine zone taken into account²⁷⁸.

Starting from the analysis of the *exclusive economic zone*, in the case that the coastal State has configured the EEZ in compliance with what provided by UNCLOS, the Convention declares that:

«[...] all States, whether coastal or land-locked, enjoy, subject to the relevant provisions of this Convention, the freedoms referred to in article 87 of navigation and overflight and of the laying of submarine cables and pipelines, and other internationally lawful uses of the sea related to these freedoms, such as those associated with the operation of ships, aircraft and submarine cables and pipelines, and compatible with the other provisions of this Convention.

2. Articles 88 to 115 and other pertinent rules of international law apply to the exclusive economic zone in so far as they are not incompatible with this Part»²⁷⁹.

²⁷⁶ With regard to the European Union, it must be quoted the EU Directive 2009/16/EC of 23 April 2009 on port State control.

²⁷⁷ MARTEN B., *Port State Jurisdiction, International Conventions, and Extraterritoriality: An Expansive Interpretation*, cit., p. 132-136. It must be specified that this approach stems from a *da iure condendo* perspective. Indeed, as further specified by judge Kittichaisaree, at the state of art: «the port State may not have unlimited jurisdiction over vessels flying the flag of another State owing to other applicable rules of international law, including customary international law and applicable treaties». (See M/V “Norstar” (Panama V. Italy), Judgement, ITLOS Report, 2019, declaration of judge Kittichaisaree, para. 5).

²⁷⁸ BEVILACQUA G., *Criminalità e sicurezza in alto mare*, cit., p. 37.

²⁷⁹ UNCLOS, art. 58,1 and 2.

According to this provision, the principle of the exclusivity of flag State jurisdiction still regulates the allocation of State sovereign powers over ships within the EEZ²⁸⁰. However, comparing with what has been observed with regard to navigation occurring on the high seas, UNCLOS sets further limitations to the full operability of this regime into the EEZ²⁸¹.

First, foreign ships are subject to coastal State's jurisdiction for what concerns the environmental protection (1). Indeed, since coastal States enjoy sovereign rights related to «the protection and preservation of the marine environment»²⁸², UNCLOS attributes them the faculty to *prescribe* and *enforce* sovereign powers over foreign ships navigating in the EEZ²⁸³. The jurisdictional rights granted to coastal States for protecting and preserving the marine environment from vessel-sourced pollution are further specified in Part XII, Section 5 of UNCLOS. Precisely, for what concerns prescriptive jurisdiction, art. 211,5 of UNCLOS declares that:

«Coastal States, [...], may in respect of their exclusive economic zones adopt laws and regulations for the prevention, reduction and control of pollution from vessels conforming to and giving effect to generally accepted international rules and standards established through the competent international organization or general diplomatic conference».

Then, about the enforcement of coastal State jurisdiction, art. 220 of UNCLOS sets a detailed procedure aimed at balancing coastal and flag States' powers over ships. More in detail, when there are clear grounds for believing that a ship has breached international rules on the prevention, reduction and control of pollution, the coastal State may require the ship to share all relevant information concerning navigation²⁸⁴. Then, in the event that there are well-founded suspicions that the ship has effectively committed a violation of these rules, resulting in «a substantial discharge causing or

²⁸⁰ NORDQUIST M.; NANDAN S.; ROSENNE S., *United Nations Convention on the Law of the Sea 1982, Commentary*, Vol. III, cit., p. 109; O'CONNELL D. P., *The International Law of the Sea*, cit., p. 820.

²⁸¹ To more in this respect, see CANNIZZARO E., *Il principio di proporzionalità nel diritto internazionale*, cit., 125-146.

²⁸² UNCLOS, art. 56,1 (b) (iii).

²⁸³ VAN DYKE J., *The disappearing right to navigational freedom in the exclusive economic zone*, *Maritime Policy*, 2005, p. 109-112; CHURCHILL R. R.; LOWE A. V., *The Law of the Sea*, cit., p. 170.

²⁸⁴ UNCLOS, art. 220,3.

threatening significant pollution of the marine environment»²⁸⁵, and when the information provided is insufficient or not coherent with the factual happenings, the coastal State may dispose physical inspections against the vessel. Furthermore, where there are «clear objective evidence»²⁸⁶ that the ship has committed a gross violation of environmental regulations causing «major damage»²⁸⁷ to the interests of the coastal State, the latter may authorize the detention of the ship.

Continuing the analysis, a further limitation to the exclusivity of flag State jurisdiction in the EEZ comes from the construction of platforms and installations, whose administration is under the *exclusive jurisdiction* of the coastal State²⁸⁸ (2). In particular, whether the coastal State has configured *safety zones* around artificial islands²⁸⁹, installations and structures, art. 60,6 of UNCLOS recalls that:

«All ships must respect these safety zones and shall comply with generally accepted international standards regarding navigation in the vicinity of artificial islands, installations, structures and safety zones».

For sake of completeness, it must be added that the mentioned rule operates even with regard to waters over the continental shelf²⁹⁰. Accordingly, within this portion of oceans, ships are obliged to «respect» the safety zones configured by the coastal States around artificial islands and installations²⁹¹.

Concluding the analysis about the safety zones, it has to be reminded that this topic was at the base of the international dispute between the States of Netherland and Russia

²⁸⁵ UNCLOS, art. 220,4.

²⁸⁶ UNCLOS, art. 220,5.

²⁸⁷ Ibid.

²⁸⁸ FIFE R. E., *Obligations of 'Due Regard' in the Exclusive Economic Zone: Their Context, Purpose and State Practice*, International Journal of Marine and Coastal Law, 2019, p. 48-49; DRENAN, M. T., *Gone overboard: Why the arctic sunrise case signals an over-expansion of the ship-as-a-unit concept in the diplomatic protection context*, cit., 10-153; p. 109-168; CHURCHILL R. R.; LOWE A. V., *The Law of the Sea*, cit., p. 170.

²⁸⁹ UNCLOS, art. 60,4-5: «The coastal State may, where necessary, establish reasonable safety zones around such artificial islands, installations and structures in which it may take appropriate measures to ensure the safety both of navigation and of the artificial islands, installations and structures. The breadth of the safety zones shall be determined by the coastal State, taking into account applicable international standards. Such zones shall be designed to ensure that they are reasonably related to the nature and function of the artificial islands, installations or structures, and shall not exceed a distance of 500 meters around them, measured from each point of their outer edge, except as authorized by generally accepted international standards or as recommended by the competent international organization. Due notice shall be given of the extent of safety zones».

²⁹⁰ UNCLOS, art. 80.

²⁹¹ CHURCHILL R. R.; LOWE A. V., *The Law of the Sea*, cit., p. 264.

concerning the arrest of the Dutch vessel *Artic Sunrise*, performed by the Russian Federation within its EEZ in 2013²⁹². In this respect, ITLOS acknowledged the existence of a dispute «in regard to the rights and obligations of a flag State and a coastal State»²⁹³. Interestingly, judges Wolfrum and Kelly affirmed in their separate opinion that:

«the coastal State according to article 60, paragraph 2, of the Convention enjoys *exclusive jurisdiction* and in the safety zones around such artificial islands or installations. *This includes legislative jurisdiction as well as the corresponding enforcement jurisdiction*»²⁹⁴.

Once reported the allocation of State powers over ships in the EEZ and in waters superjacent the continental shelf, the last part of this section aims at dealing with the configuration of the jurisdictional balance provided by UNCLOS for what concerns navigation occurring in the *contiguous zone*.

In this respect, the principle of the exclusivity of flag State jurisdiction is subject to further limitations in favour of the growing role played by the coastal State. Precisely, within the contiguous zone, the coastal State may exercise its jurisdictional powers over foreign ships in order to:

«(a) prevent infringement of its customs, fiscal, immigration or sanitary laws and regulations within its territory or territorial sea;

(b) punish infringement of the above laws and regulations committed within its territory or territorial sea»²⁹⁵.

Although the literal interpretation of art. 33 of UNCLOS may bring to the conclusion that coastal States may limitedly exercise jurisdiction of enforcement, authoritative scholars are of the view that they even enjoy exclusive prescriptive jurisdiction over foreign ships²⁹⁶.

²⁹² “*Artic Sunrise*”, cit. See note 199 of this chapter.

²⁹³ “*Artic Sunrise*”, cit., para. 68.

²⁹⁴ “*Artic Sunrise*” (Kingdom of Netherlands v. Russian Federation), Order of Provisional Measures, ITLOS Reports, 2013, Separate Opinion of Judges Wolfrum and Kelly, para. 12 (emphasis added). For sake of completeness, it has to be remembered that this topic has been partly discussed by the Permanent Court of Arbitration (PCA) in the succeeding *The Arctic Sunrise Arbitration* cit., paras. 76-81.

²⁹⁵ UNCLOS, art. 33,1.

²⁹⁶ CHURCHILL R. R.; LOWE A. V., *The Law of the Sea*, cit., p. 137.

Moreover, it has to be specified that, within the contiguous zone, coastal States may exercise their jurisdiction only in respect of the activities that occurred in the land territory or in the territorial sea of that State, and not with regard to those conducts completely realized within the contiguous zone²⁹⁷. Intuitively, this is because the reported powers granted by the UNCLOS to coastal States are instrumental for limitedly ensuring the effectiveness of the State's sovereignty over its own territory. Precisely, with reference to the activity of navigation:

«[t]hese waters are and remain a part of the high seas and are not subject to the sovereignty of the coastal State»²⁹⁸.

iii) Jurisdiction over ships within territorial, archipelagic and internal waters

Within territorial and archipelagic waters, the allocation of State sovereign powers over the activity of navigation is not regulated as described above. Due to the recognition of jurisdictional rights to coastal and archipelagic States on the basis of territorial sovereignty²⁹⁹, within these marine zones the interaction between the spatial and flag criteria gives birth to a different normative scheme, strongly based on the greater relevance given to the former at the expense of the latter. Even in this case, however, flag State jurisdiction plays a role in the jurisdictional balance, albeit quite limited when compared to what was noted in the previous pages. Precisely, within territorial and archipelagic seas, flag State jurisdiction compresses itself with limited reference to what occurs on board the ship³⁰⁰; as a general rule, *while the internal*

²⁹⁷ In this regard, see the Italian national decision *Kircaoglu e Sanaga*, Corte di Cassazione, N. 32960, 8 Settembre 2010. This national decision is in-depth analyzed by CALIGIURI A., *Kircaoglu and Sanaga Final Appeal Judgement, No 32960/2010*, Oxford Reports on International Law, 2010.

²⁹⁸ ILC, *Articles Concerning the Law of the Sea*, cit., commentary to article 66, para. 1, p. 294. For a more innovative approach in dealing with the allocation of jurisdiction in the continuous zone, see ESCHENHAGEN P.; JÜRGENS M., *Protective Jurisdiction in the Contiguous Zone and the Right of Hot Pursuit: Rethinking Coastal States' Jurisdictional Rights*, Melbourne Journal of International Law, 2018, p. 1-25.

²⁹⁹ See section 2(b)(i) of the present chapter.

³⁰⁰ ZAMUNER E., *La tutela delle navi private nel diritto internazionale*, cit., p. 160. Before the first attempts of codification of the Law of the Sea, the emergence of this concept was enshrined by GREGORY C., *Jurisdiction over Foreign Ships in Territorial Waters*, Michigan Law Review, 1904, p. 355: «as to vessels belonging to private owners in foreign territorial waters, jurisdiction attaches whether those waters

*aspects related to navigation remain under the jurisdiction of the flag State, the external implications are subject to the jurisdiction of the coastal State*³⁰¹.

This conclusion is reached through the analysis of arts. 27 and 28 of UNCLOS³⁰², respectively dealing with the regulation of criminal and civil jurisdiction of the coastal State over foreign ships enjoying their right of innocent passage through the territorial sea³⁰³ (as explicitly provided by UNCLOS, these rules operate even within the archipelagic waters)³⁰⁴.

According to art. 27,1 of UNCLOS, the coastal State *should not* enforce³⁰⁵ its criminal jurisdiction over ships flying the flag of another State, save in the following circumstances:

- «(a) if the consequences of the crime extend to the coastal State;
- (b) if the crime is of a kind to disturb the peace of the country or the good order of the territorial sea;
- (c) if the assistance of the local authorities has been requested by the master of the ship or by a diplomatic agent or consular officer of the flag State;
- or (d) if such measures are necessary for the suppression of illicit traffic in narcotic drugs or psychotropic substances».

Then, as far as civil jurisdiction is concerned, UNCLOS establishes that:

are enclosed or littoral, very much on the discretion of the local State, but with a constant practice in local authorities to refuse jurisdiction if the ship and its company are alone affected».

³⁰¹ BARNES R., *Flag States*, cit., p. 311-312.

³⁰² These articles are strongly based on the texts of art. 19 and 20 of the Convention on Territorial Sea and Contiguous Zone.

³⁰³ This topic is well addressed by WOLF S., *Territorial Sea*, cit., paragraph (c).

³⁰⁴ UNCLOS, art. 52,1: «[...] ships of all States enjoy the right of innocent passage through archipelagic waters, in accordance with Part II, section 3». The main difference between the regulation of innocent passage in the territorial sea and in archipelagic waters is that, for what concerns the latter, the archipelagic State may «suspend temporarily in specified areas of its archipelagic waters the innocent passage of foreign ships if such suspension is essential for the protection of its security. Such suspension shall take effect only after having been duly published» (UNCLOS, art. 52,2).

³⁰⁵ According to CHURCHILL R. R.; LOWE A. V., *The Law of the Sea*, cit., p. 98, arts. 27 and 28 of UNCLOS surely deal with the jurisdiction of enforcement. On the same view, it is to be reported what argue by the ILC, *Articles Concerning the Law of the Sea*, cit., commentary to article 20, para. 1, p. 275: «The coastal State's authority to bring the offenders before its courts (if it can arrest them) remains undiminished, but its power to arrest persons on board ships which are merely passing through the territorial sea is limited to the cases enumerated in the article». Instead, for what concerns prescriptive jurisdiction, «it seems a legitimate inference from the principle of coastal State sovereignty over the territorial sea that States retain the right to extend any other legislation *apart from that dealing with navigation* and so on, to foreign ships in their waters, but that they will normally be expected, as a matter of comity, to refrain from doing so» (CHURCHILL R. R.; LOWE A. V., *The Law of the Sea*, cit., p. 95, emphasis added).

«1. The coastal State *should not* stop or divert a foreign ship passing through the territorial sea for the purpose of exercising civil jurisdiction in relation to a person on board the ship.

2. The coastal State may not levy execution against or arrest the ship for the purpose of any civil proceedings, save only in respect of obligations or liabilities assumed or incurred by the ship itself in the course or for the purpose of its voyage through the waters of the coastal State»³⁰⁶.

The reported provisions show that the recognition of the nationality of ships *should* theoretically preclude the coastal States from exercising jurisdiction for what occurs on board foreign ships. In this regard, it must be highlighted that the recourse to the conditional form “should”:

«reduces the hitherto widely held legal obligation to a mere exhortation with respect to the limitation of a State’s jurisdiction over foreign ships passing through the territorial sea»³⁰⁷.

Put differently, flag State jurisdiction *should* protect the ship from any interferences of the coastal State regarding the internal aspects of navigation. In any case, this “quasi-legal” delimitation does not operate when the consequences of what occurring on board the ships have external implications.

Intuitively, the other side of the same coin is that every external aspect of navigation is fully subject to the jurisdiction of coastal State: broadly speaking, it maybe concluded that, within territorial and archipelagic waters, the functional criterion³⁰⁸ (flag State jurisdiction) gives the way to the spatial one (coastal State jurisdiction)³⁰⁹. Accordingly, coastal States may prescribe and enforce laws relating to the *innocent passage*³¹⁰ of foreign ships in respect of:

³⁰⁶ UNCLOS, art. 28,1-2 (emphasis added). Historically, this matter has been addressed by JESSUP P., *Civil Jurisdiction over Ships in Innocent Passage*, American Journal of International Law, 1933, p. 747-750.

³⁰⁷ LEE L., *Jurisdiction Over Foreign Merchant Ships in the Territorial Sea: An Analysis of the Geneva Convention on the Law of the Sea*, American Journal of International Law, 1961, p. 86.

³⁰⁸ See section 3(b)(i) of the present chapter.

³⁰⁹ For what concerns the adoption of the adjective “functional” to describe the regime of flag State jurisdiction, see section 3(b)(i) of the present chapter.

³¹⁰ From a jurisdictional perspective, the regulation of the innocent passage of foreign ships provided by UNCLOS has the function to: «coniugare il principio di sovranità territoriale con il diritto di navigazione, conciliando quindi I diritti – potenzialmente contrapposti – dello Stato costiero e dello Stato di bandiera» (PAPANICOLOPULU I.; BAJ G., *Controllo delle frontiere statali e respingimenti nel diritto internazionale e nel diritto del mare*, Diritto, Immigrazione e Cittadinanza, 2020, p. 29). To more in this regard, see CANNIZZARO E., *Il principio di proporzionalità nel diritto internazionale*, cit., 100-124.

- «(a) the safety of navigation and the regulation of maritime traffic;
- (b) the protection of navigational aids and facilities and other facilities or installations;
- (c) the protection of cables and pipelines;
- (d) the conservation of the living resources of the sea;
- (e) the prevention of infringement of the fisheries laws and regulations of the coastal State;
- (f) the preservation of the environment of the coastal State and the prevention, reduction and control of pollution thereof;
- (g) marine scientific research and hydrographic surveys;
- (h) the prevention of infringement of the customs, fiscal, immigration or sanitary laws and regulations of the coastal State»³¹¹.

The granting of these jurisdictional powers corresponds to the duty of coastal and archipelagic States not to deny and impair the right of innocent passage nor discriminate ships flying the flag of any other State³¹². Moreover, they shall give due publicity to all laws and regulations concerning navigation³¹³. In any case, beyond these limitations, coastal and archipelagic States are free in exercising their jurisdiction over foreign ships for what concerns the performance of navigation³¹⁴.

Conclusively, with final regard to the allocation of State jurisdiction over ships in *internal waters*, the primacy of the principle of territoriality over flag State jurisdiction is even more acute. Since the internal waters are a constitutive part of the territory of a State³¹⁵, the latter enjoys full sovereignty over ships located there³¹⁶. Precisely, *port States*³¹⁷ are allowed to exercise prescriptive and enforcement jurisdiction over foreign ships³¹⁸.

³¹¹ UNCLOS, art. 21,1. Generally, it is retained that this provision reflects customary international law. In this respect, in order to better clarify the rationale of this rule, it is of outstanding clarity the analogy proposed by JESSUP P., *The Law of Territorial Waters and Maritime Jurisdiction*, cit., p.138: «Just as an automobilist in France must keep to the right, so it seems natural that a ship in French waters must obey the rules of the sea-road».

³¹² UNCLOS, art. 24,1.

³¹³ UNCLOS, arts. 21,3 and 24,2.

³¹⁴ MEYERS H., *The Nationality of Ships*, cit., p. 80: «For all situations in the territorial sea not covered by the expression “innocent passage” the coastal state is always exclusively competent».

³¹⁵ See note 79 of the present chapter.

³¹⁶ More precisely, as noted by BECKMAN R.; SUN Z., *The Relationship between UNCLOS and IMO Instruments*, cit., p. 229: «The legal bases for port State jurisdiction could be either territorial or extra-territorial as provided by a treaty».

³¹⁷ See note 270 of the present chapter.

³¹⁸ See D. KONIG, *Flag of Ships*, cit.: «By entering a foreign port or foreign [internal waters](#), a merchant ship and its crew comes temporarily within the territorial jurisdiction of the port State, i.e. it becomes subject to the laws and enforcement powers of that State. On the basis of its territorial

In this regard, however, it must be added that some limitations to this customary rule³¹⁹ could emerge in the case of admitting the validity of the above mentioned extensive interpretation of art. 92,1 of UNCLOS, according to which non-flag States should be precluded from exercising prescriptive jurisdiction over ships with reference to their conducts on the high seas³²⁰. According to this approach, such a delimitation would operate even in respect of port States when foreign ships enter into their internal waters. Precisely, as recently noted by ITLOS in the *Norstar* case:

«Even when enforcement is carried out in internal waters, article 87 may still be applicable and be breached *if a State extends its criminal and customs laws extraterritorially to activities of foreign ships on the high seas and criminalizes them*»³²¹.

In this regard, it has been already said that this extensive interpretation of art. 92,1 of UNCLOS is far from convincing; in the author's view, the principle of the exclusivity of flag State jurisdiction on the high seas merely deals with the jurisdiction of enforcement. Therefore, since no international rule prohibits port States from extending their laws even for what concerns navigation on the high seas, States should generally enjoy full powers in performing prescriptive (and enforcement) jurisdiction over foreign ships placed within their internal waters.

iv) The exercise of jurisdiction over ships without nationality

Summarizing what has been already observed, the outlined normative framework is based on the interrelation between the jurisdictional links of the space and the flag: broadly speaking, the configuration of the jurisdictional balance over ships depends on where navigation occurs and upon which national flag the activity is performed.

sovereignty, the coastal, that is to say, the port State may regulate the conditions for the access to and the stay of foreign vessels in its ports».

³¹⁹ See note 271 of the present chapter.

³²⁰ See section 3(c)(i) of the present chapter.

³²¹ *M/V "Norstar"* (Panama v. Italy), cit., para. 226 (emphasis added).

Intuitively, this scenario is subject to change in the case of *stateless vessels*, i.e. ships without nationality³²².

As noted before, States may grant their flag to ships, but they are surely not obliged to do that: potentially, it may happen that non-registered ships cross the oceans. In particular, this eventuality is far from being rare and occasional in case of the performance of unlawful maritime activities, such as, for example, drug trafficking³²³ and illegal, unreported and unregulated fishing (IUU)³²⁴. Manifestly, this occurrence is largely detrimental to the physiological functioning of the law of maritime jurisdiction. Accordingly:

«The introduction of stateless vessels causes the international regime, predicated as it is on nationality, to breakdown and with this breakdown there is an attendant loss of the protections afforded by the system»³²⁵.

In these circumstances, the usual allocation of State jurisdiction as described above cannot find application; intuitively, the jurisdictional balance over stateless ships is not based on the principle of flag State jurisdiction. Once acknowledged this, it arises the question of what States may prescribe and enforce their sovereign powers over ships without nationality.

For what concerns the navigation occurring within the waters under national jurisdiction, the respective coastal and port States may reasonably assert their jurisdictional powers over stateless ships on the basis of the territoriality principle³²⁶. Unlike what was noted in the previous pages³²⁷, in this case the territorial jurisdiction is not limited with reference to the external aspects of navigation; instead, it may further extend up to the internal vicissitudes of the ship.

³²² See section 3(b)(ii) of this chapter. For the sake of completeness, it must be specified that this section will not go into the demonstration of the absence of the nationality of a ship: it limitedly analyzes the allocation of State jurisdiction over flagless ships. Moreover, in compliance with art. 92,2 of UNCLOS, it must be pointed out that this work will analogously treat ships without nationality and ships flying the flag of two States.

³²³ To more in this regard, see BENNETT A., *The Sinking Feeling: Stateless Ships, Universal Jurisdiction, and the Drug trafficking Vessels Interdiction Act*, cit.; ANDERSON A., *Jurisdiction over Stateless Vessels on the High Seas: An Appraisal under Domestic and International Law*, cit.

³²⁴ WARNER-KRAMER D.; CANTY K., *Stateless Fishing Vessels: The Current International Regime And A New Approach*, *Ocean & Coastal Law Journal*, 2000, p. 227-244.

³²⁵ ANDERSON A., *Jurisdiction over Stateless Vessels on the High Seas: An Appraisal under Domestic and International Law*, cit., p. 335.

³²⁶ CHURCHILL R. R.; LOWE A. V., *The Law of the Sea*, cit., p. 214.

³²⁷ See section 3(c)(iii) of this chapter.

For what concerns the navigation on the high seas, then, the jurisdictional status of ships without nationality assumes peculiar characteristics. Since the allocation of jurisdiction in this portion of the oceans is based on the principle of exclusivity of flag State jurisdiction³²⁸, the lack of the “flag” breaks the usual configuration of the usual jurisdictional balance over ships.

In this respect, it must be preliminary noted that the condition of the absence of nationality is one of the cases for which the UNCLOS explicitly recognizes the right to visit by every State over ships on the high seas³²⁹. Allegedly, this is because a flagless ship is not connected with any national entity, therefore the visit of another vessel does not pose an unlawful interference to the exercise of the State’s right of freedom of navigation. More finely:

«In the interest of order on the open sea, a vessel not sailing under the maritime flag of a State enjoys no protection whatsoever, for *the freedom of navigation on the open sea is freedom for such vessels only as sail under the flag of a State*»³³⁰.

This conclusion – shared by authoritative scholars³³¹ and renowned national jurisprudence³³² – denotes that *every State may potentially enforce jurisdiction over ships without nationality navigating on the high seas*. Once acknowledged this, however, further concerns emerge about its practical consequences: precisely, it is asked whether flagless ships are (or not) under the regime of universal jurisdiction³³³.

In the view of some authors³³⁴, the absence of the nationality of the ships is a so dangerous threat to the tightness of the regime of governance at sea to be *universally* persecuted by every State. From this perspective, the absence of flag State’s protection means that every State may enforce its jurisdiction over stateless vessels.

³²⁸ See section 3(c)(i) of this chapter.

³²⁹ UNCLOS, art. 110,1(d).

³³⁰ OPPENHEIM L., *International Law*, Vol. I, 6th edition, London, 1947, p. 546 (emphasis added).

³³¹ BARNES R., *Flag States*, cit., p. 310; CHURCHILL R. R.; LOWE A. V., *The Law of the Sea*, cit., p. 214; LUCCHINI L.; VOELCKEL M., *Droit de la mer*, cit., p. 81; O’CONNELL D. P., *The International Law of the Sea*, cit., p. 754.

³³² *Naim Molvan v. Attorney General for Palestine* (The “Asya”), United Kingdom: Privy Council (Judicial Committee), 20 April 1948, p. 369.

³³³ See section 2(a) of this chapter.

³³⁴ ANDERSON A., *Jurisdiction over Stateless Vessels on the High Seas: An Appraisal under Domestic and International Law*, cit., p. 335-336. In a less intense form, this position is availed by MCDUGAL M., *The Maintenance of Public Order at Sea and the Nationality of Ships*, cit., p. 27; 76-77.

According to other scholars³³⁵, instead, the non-applicability of the regime of flag State jurisdiction does not allow any State to assert jurisdiction over flagless ships: only those States that have a jurisdictional nexus with them may enforce their sovereign powers.

In this author's view, the latter position seems to be preferable. Unlike piracy³³⁶, indeed, the use of ships without nationality is not *per se* an international crime, to which International Law allows the applicability of the special regime of universal jurisdiction³³⁷. Therefore, it seems that the mere lack of the nationality of a ship does not give rise to a legitimate pretense of jurisdiction, irrespectively of a jurisdictional link between a State and the navigation of a flagless vessel.

More limitedly – but highly relevantly anyway – stateless ships on the high seas are not protected by the principle of exclusivity of flag State jurisdiction.

d) The malfunctioning of State governance at sea: the phenomenon of flags of convenience

Apart from the exceptional case of flagless vessels, the allocation of State powers over ships is based on a crossing relation between the international rules configuring the regimes of flag State and territorial jurisdiction: depending on the specific circumstances, the activity of navigation may be subject to the jurisdiction of the flag State, the coastal State *and/or* the port State.

³³⁵ CHURCHILL R. R.; LOWE A. V., *The Law of the Sea*, cit., p. 214: «Ships without nationality are in a curious position. Their 'Statelness' will not, of itself, entitle each and every State to assert jurisdiction over them, for there is not in every case any recognized basis upon which jurisdiction could be asserted over stateless ships on the high seas». On the same advice, see NORDQUIST M.; NANDAN S.; ROSENNE S., *United Nations Convention on the Law of the Sea 1982, Commentary*, Vol. III, cit., p. 125; LUCCHINI L.; VOELCKEL M., *Droit de la mer*, cit., p. 82.

³³⁶ UNCLOS, art. 105: « On the high seas, or in any other place outside the jurisdiction of any State, every State may seize a pirate ship or aircraft, or a ship or aircraft taken by piracy and under the control of pirates, and arrest the persons and seize the property on board. The courts of the State which carried out the seizure may decide upon the penalties to be imposed, and may also determine the action to be taken with regard to the ships, aircraft or property, subject to the rights of third parties acting in good faith».

³³⁷ In this sense, see BENNETT A., *The Sinking Feeling: Stateless Ships, Universal Jurisdiction, and the Drug trafficking Vessels Interdiction Act*, cit., p. 450.

Within this picture, it has been noted that the UNCLOS strongly relies on flag States efforts in concretely exercising jurisdiction over ships flying their flag³³⁸. Indeed, independently of where navigation takes place, flag States enjoy *exclusive* powers for what concerns, at least, the internal aspects of navigation. In addition, recalling what highlighted in the first chapter of the present research³³⁹, flag States are *responsible* for ensuring that their ships comply with international rules on safety of navigation³⁴⁰; in few words, they shall establish a degree of effective control over national vessels in order to satisfy the requirement of the *genuine link*, as provided by art. 91,1 of UNCLOS³⁴¹. In this regard, it seems that the Convention places a sort of “unconditional trust” in flag States to give shape to the exposed regime on State governance at sea³⁴².

From a practical perspective, this normative solution has shown to be quite open to criticism. As it is widely known, indeed, the phenomenon of the *flags of convenience*³⁴³ has negatively marked the implementation of the provisions analyzed above.

With the locution “flags of convenience”, the author refers to:

³³⁸ *Lauritzen v. Larsen*, 345 U.S., American Supreme Court, 1953, p. 571: «Perhaps the most vulnerable and universal rule of maritime law is that which gives cardinal importance to the law of the flag. Each state under international law may determine for it self the conditions on which it will grant its nationality to a merchant ship, thereby accepting responsibility for it and acquiring authority over it» (this quotation is taken by the reading of LUCCHINI L.; VOELCKEL M., *Droit de la mer*, cit., p. 45. More recently, see NORDQUIST M.; NANDAN S.; ROSENNE S., *United Nations Convention on the Law of the Sea 1982, Commentary*, cit., Vol. III, p. 104: «This link [flag State jurisdiction] is the principal factor for maintaining discipline in all aspects of maritime navigation [...]».

³³⁹ See section 3(b) of the first chapter of the present research.

³⁴⁰ PAPANICOLOPULU I., *Due Diligence in the Law of the Sea*, cit., p. 160; BARNES R., *Flag States*, cit., p. 314-315; MANSELL J., *Flag State Responsibility*, cit.; ROUCOUNAS E., *Effectiveness of International Law for the Users of the Sea*, cit., p. 877-878.

³⁴¹ See section 3(b)(ii) of the present chapter.

³⁴² For sake of completeness, it must be reported that the IMO has tried to strengthen the duties upon flag States to effectively control and govern their national vessels. In this sense, see the IMO Instruments Implementation Code, Res A.1070(28), 4 December 2013, that substituted the previous Voluntary IMO Member State Audit Scheme, Res. A.946(23), 25 February 2004. To more in this respect, see ZHU L.; JESSEN H., *From a Voluntary Self-Assessment to a Mandatory Audit Scheme: Monitoring the Implementation of IMO Instruments*, *Lloyd's Maritime and Commercial Law Quarterly*, 2016, p. 389-411.

³⁴³ Among many others, this topic is in-depth analyzed by VEZZANI S., *Jurisdiction in International Fisheries Law*, cit., p. 158-161; NEGRET C., *Pretending to be Liberian and Panamanian; Flags of Convenience and the Weakening of the Nation State on the High Seas*, *Journal of Maritime Law & Commerce*, 2016, p. 1-28; LAGONI R., *Merchant Ships*, cit., part D; MARCOPOULOS A.J., *Flags of terror: An Argument for Rethinking Maritime Security Policy Regarding Flag of Convenience*, *Tulane Maritime Law Journal*, 2007, p. 277-312; LLACER F.J.M., *Open Registers: Past, Present and Future*, *MarinePolicy*, 2003, p. 513-523; MATLIN, D.F., *Re-evaluating the status of flags of convenience under international law*, *Vanderbilt Journal of Transnational Law* 23, 1991, p. 1017-1056; BOCZEK B., *Flags of Convenience. An International Legal Study*, Harvard, 1962.

«the flag of any country allowing the registration of foreign owned and foreign controlled vessels under conditions which, for whatever the reasons, are convenient and opportune for the persons who are registering the vessels»³⁴⁴.

Put differently, this term describes the practice of some States of easily conceding their nationality to foreign vessels, in order to “attract” foreign private investors through the reduction of the costs deriving from control operations³⁴⁵. Among many States opting for this strategy, Panama, Liberia and Marshall Islands stand for relevance; to date, as noted by UNCTAD³⁴⁶, they are the first three largest ship-owing States of the whole international community³⁴⁷.

The rise of this economic and bureaucratic “concurrency” between States appears to be largely detrimental to the international safety of navigation. Indeed, ships flying “flags of convenience” may easily obtain a nationality through not very intense forms of domestic control. As a consequence, the national maritime economy of a “flag of convenience State” is usually undersized in respect of the tonnage nominally under its nationality³⁴⁸; this fact clearly reduces the effective capacity of that State of controlling and monitoring their ships during navigation.

Legally speaking, the spread of this practice seems to be somehow “encouraged” by the current configuration of the Law of the Sea³⁴⁹. Indeed, if the flag States are the sole holders of jurisdictional rights over the internal aspects of navigation and, contextually, it is not asked them to ensure the existence of the *genuine link* as a condition for granting their nationality to ships, it derives that the phenomenon of flags of convenience is at least tolerated, if not incentivized, by the Law of the Sea.

³⁴⁴ BOCZEK B., *Flags of Convenience*, cit., p. 2. A similar definition is given by ROUCOUNAS E., *Effectiveness of International Law for the Users of the Sea*, cit., p. 880: «A “flag of convenience” (FOC) derives from the registration of a ship in a country whose legislation is not very strict or whose public administration is unwilling or not able to exercise effective control over the ship and the crew, or whose taxes on profits arising from shipping operations are low».

³⁴⁵ MATLIN, D. F., *Re-evaluating the status of flags of convenience under international law*, cit., p. 1044-1046.

³⁴⁶ The United Nations Conference on Trade And Development (UNCTAD) is a UN permanent intergovernmental body established by the UN General Assembly in 1964. Its headquarters are in Geneva, Switzerland, New York and Addis Ababa. For more information, see the website <https://unctad.org/about>.

³⁴⁷ UNCTAD, *Review of Maritime Transport*, New York, 2014, p. 44.

³⁴⁸ ZAMUNER E., *La tutela delle navi private nel diritto internazionale*, cit., p. 131.

³⁴⁹ For a provoking lecture in this sense, see MUKHERJEE R., *Ship Nationality, Flag States and the Eradication of substandard Ships: A Critical Analysis*, in MUKHERJEE P.; MEJIA M.; XU J. (eds.), *Maritime Law in Motion*, Cham, 2020, p. 581-606.

During the twentieth century, an opportunity to fight the proliferation of such a pathological behaviour was given to the International Court of Justice, when it was asked to pronounce on the meaning to assign to the locution «largest ship-owning nations» of art. 28(a) of the Convention of the Intergovernmental Maritime Consultative Organization (IMCO, now IMO)³⁵⁰. In this regard, the IMCO Convention provides that the Maritime Safety Committee should consist of fourteen delegates, elected from the Members of which not less than eight shall be «the largest ship-owning nations»³⁵¹.

In addressing this interpretative issue, the ICJ concluded that “flag of convenience” States could not be excluded from the list of the «the largest ship-owning nations». In fact, since the Court did not retain that the lack of the genuine link should be seen as a relevant factor for interpreting the locution “ship-owning nation”, it necessarily concluded that the non-inclusion of Panama and Liberia within the IMCO Maritime Safety Committee was in contrast with art. 28(a) of the IMCO Convention.

In order to address the same problem, some years later the UNCTAD promoted a process of negotiation among States, which has brought in 1986 to the drafting of the United Nations Convention on Conditions for Registration of Ships³⁵². As enshrined in its art. 1, the treaty aims at:

«strengthening the genuine link between a State and ships flying its flag»³⁵³.

From this perspective, the convention further specifies the duties of the flag State in exercising its jurisdictional powers over ships, requiring them to:

³⁵⁰ *Constitution of the Maritime Safety Committee of the Inter-Governmental Maritime Consultative Organization*, cit. For a comment to this decision, see MACCHENSEY, B., *Interpretation of Convention for the Establishment of International Maritime Consultative Organization*, American Journal of International Law, 1960, p. 884-894.

³⁵¹ IMCO Convention of 1959, art. 28(a): «The Maritime Safety Committee shall consist of fourteen Members elected by the Assembly from the Members, governments and those nations having an important interest in maritime safety, of which not less than eight shall be largest ship-owning nations, and the remainder shall be the elected so as to enclosure adequate representation of Members, governments of other nations with an important interest in maritime safety, such as nations interested in the supply of large numbers of crews or in the carriage of large numbers of berthed and unberthed, and of major geographical areas».

³⁵² See note 166 of the present chapter. For a more detailed analysis of this Convention, see ASSONITIS G., *Réglementation internationale des transports maritimes dans le cadre de la CNUCED*, Paris, 1991, p. 163-200; EGIYAN G.S., *The principle of genuine link and the 1986 UN Convention on the Registration of Ships*, Marine Policy, 1988, p. 314-321; MCCONNELL M., *Business as usual: An evaluation of the 1986 united nations convention on conditions for registration of ships*, Journal of Maritime Law and Commerce, 1987, p. 435-450.

³⁵³ (Emphasis added).

«[...] implement applicable international rules and standards concerning, in particular, the safety of ships and persons on board and the prevention of pollution of the marine environment»³⁵⁴,

and to:

«[...]] require all the appropriate information necessary for full identification and accountability concerning ships flying its flag»³⁵⁵.

Then, with specific regard to the process of attribution of nationality to ships, the convention imposes on State Parties to ensure *appropriate participation by nationals in the ownership and/or manning of ships*³⁵⁶. Intuitively, the main purpose of this requirement is to preclude States from granting nationality to those ships, for which the flying of that specific flag appears not to be a physiological choice, but, instead, an opportunity merely based on pathological reasons of economic convenience.

Despite the theoretical innovations brought by the UN Convention on Conditions for Registration of Ships³⁵⁷, their practical relevance is, however, closed to be irrelevant. As a matter of fact, indeed, only 15 States have signed the Convention. Therefore, since art. 19,1 of the treaty requires the representation of, at least, the 25% of the world's tonnage – a percentage that is not covered by the exiguous number of current State

³⁵⁴ UN Convention on Conditions for Registration of Ships, art. 5,2.

³⁵⁵ UN Convention on Conditions for Registration of Ships, art. 5,4.

³⁵⁶ UN Convention on Conditions for Registration of Ships, art. 7: «With respect to the provisions concerning manning and ownership of ships as contained in paragraphs 1 and 2 of article 8 and paragraphs 1 to 3 of article 9, respectively, and without prejudice to the application of any other provisions of this Convention, a State of registration has to comply either with the provisions of paragraphs 1 and 2 of article 8 or with the provisions of paragraphs 1 to 3 of article 9, but may comply with both». This general duty is better specified in art. 8,2: «Subject to the provisions of article 7, in such laws and regulations the flag State shall include appropriate provisions for participation by that State or its nationals as owners of ships flying its flag or in the ownership of such ships and for the level of such participation. These laws and regulations should be sufficient to permit the flag State to exercise effectively its jurisdiction and control over ships flying its flag»; and art. 9,1: «Subject to the provisions of article 7, a State of registration, when implementing this Convention, shall observe the principle that a satisfactory part of the complement consisting of officers and crew of ships flying its flag be nationals or persons domiciled or lawfully in permanent residence in that State».

³⁵⁷ For a contrary position to what already argued, see ZAMUNER E., *La tutela delle navi private nel diritto internazionale*, cit., p. 110-111, according to which: «la nazionalità del proprietario [...] non può, in quanto tale, rappresentare un indice certo di un legame sostanziale della nave con lo Stato di bandiera, potendo assumere a sua volta un carattere fittizio»; D. KONIG, *Flag of Ships*, cit., para. 11: «Since this concept was, due to economic changes, not acceptable any more to most developed countries, the text of the UN Registration Convention was the result of far-reaching compromises. It is characterized by vague wording, which leaves flag States with ample room for interpretation and the use of discretion, and a lack of an effective enforcement mechanism vis-à-vis foreign ships by coastal or port States».

parties – the UN Convention on Conditions for Registration of Ships has not yet entered into force. Moreover, even if it did, there would be no guarantee that the “flag of convenience States” will sign the Convention, since they would have no particular interest in doing so³⁵⁸.

Beyond the mentioned efforts of the international community, nowadays it is quite accepted that the genuine link is not a pre-condition for the operability of the regime of flag State jurisdiction; more limitedly, it sets a duty upon the flag State to keep a degree of control over ships flying its flag³⁵⁹.

In the last decades, the fight against the phenomenon of flags of convenience has changed its strategy. Accordingly, instead of insisting on the strengthening the genuine link between the flag State and its ships, non-flag States are implementing:

«an improved and harmonized system of port State control and of strengthening co-operation and the exchange of information»³⁶⁰.

In other words, port State jurisdiction:

«[...] developed as a form of subsidiary jurisdiction to remedy the deficiencies of FSJ [Flag State Jurisdiction]»³⁶¹.

As it has been noted in section 3(c)(i) of this chapter, the expansion of (even extraterritorial) port State powers over foreign ships manifests the existence of a State practice aimed at compressing flag State jurisdiction *from a position of exclusivity to a role of mere primacy*³⁶² within the maritime jurisdictional balance. This approach, except for the cases specifically excluded by the law, admits the potential overlapping

³⁵⁸ CHURCHILL R. R.; LOWE A. V., *The Law of the Sea*, cit., p. 260.

³⁵⁹ See section 3(b)(ii) of this chapter.

³⁶⁰ 1982 *Paris Memorandum of Understanding on Port State Control*, preamble. Similarly, see the 2018 *Memorandum of Understanding on Port State Control in the Asia-Pacific Region*, preamble.

³⁶¹ RYNGAERT C.; RINGBOM H., *Port State Jurisdiction Challenges and Potential*, cit., p. 385; ROUCOUNAS E., *Effectiveness of International Law for the Users of the Sea*, cit., p. 985: «One important feature in the emergence of the *common interest* and the responsibility of States to effectively preserve values common to the international community, is the *by-pass of the flag State by the regime of port State control* [...]».

³⁶² GAVOUNELI M., *Functional Jurisdiction in the Law of the Sea*, cit., p. 165: «The primacy, if not exclusiveness, of flag State jurisdiction has become thus the cornerstone on which the public order of the high seas is erected». On the same view, see BARNES R., *Flag States*, cit., p. 303; LAGONI R., *Merchant Ships*, cit.

of jurisdiction between States with regard to the activity of navigation³⁶³; clearly, this strategy finds its foundations on the evergreen validity of the renowned “*Lotus Principle*” in the marine domain³⁶⁴.

Concluding this section, the phenomenon of the flags of convenience is still present in the contemporary ages. Its persistence appears to be one of the main critical aspects characterizing the concrete implementation of the rules on State governance at sea. Having said this, however, the international community continues its fight against the proliferation of the negative consequences brought by the spread of open registers. In this regard, once exhausted the debate concerning the relevance of the genuine link as provided in art. 91,1 of UNCLOS, non-flag States are trying to erode the exclusivity of flag State jurisdiction directly from their ports. This practice is based on the idea that the exercise of States’ jurisdiction over ships is always admissible unless explicitly precluded by International Law.

The conduction of the above-mentioned strategy may easily bring to two general conclusions, strictly related one to the other. First, the current configuration of the jurisdictional balance at sea does not completely avoid the rise of potential overlapping of jurisdiction among States. Second, and consequently, the allocation of State powers over ships provided by UNCLOS is far from providing a coherent and effective theory of jurisdiction³⁶⁵, which continues to lay itself open to abuses (flags of convenience) and to potential international disputes (conflicts of jurisdiction between States).

³⁶³ As noted by RYNGAERT C., *Jurisdiction in International Law*, cit., and MANN F. A., *The Doctrine of Jurisdiction in International Law*, cit., At the state of art, with regard to, at least, the exercise of prescriptive jurisdiction, there is no rule prohibiting conflicts of jurisdiction between States. This aspect is in-depth analyzed in section 4(b) of the present chapter of this research.

³⁶⁴ See note 21 of the present chapter.

³⁶⁵ See note 66 of the present chapter.

4. The applicability of the international regime of maritime jurisdiction to MASS navigation

a) A new paradigm for performing navigation: new challenges for the implementation of State governance at sea

As already enshrined in the first chapter of the present research³⁶⁶, the ergonomics of navigation strongly depend on the progressive steps made by the naval technology³⁶⁷. Accordingly, even the present analysis needs to take into consideration the recent rise and growing use of the technologies of automation and digitalization into the maritime context.

As it has been noted above, in the last few years States and private entities, driven by significant economic perspectives, are paying close attention to this technical revolution³⁶⁸. Through the digitalization of information and the automation of control, ships may now be (fully or partially) commanded from shore. This new opportunity clearly revolutionizes the way of conceiving navigation. From a factual point of view, indeed, the performance of maritime human activities is subject to change. Broadly speaking, the traditional paradigm for performing navigation (the physical attendance of seafarers on board the ship) is no longer the unique method for crossing waters. Today, the objective and subjective elements of navigation may be located in different places: while the object-ship is at sea, the human component may (fully or partially) work from shore.

The existence and the fast-growing use of MASS poses both theoretical and practical questions concerning the applicability of the previously analyzed international

³⁶⁶ See section 2(b) of the previous chapter.

³⁶⁷ ALLEN C.H., *Determining the Legal Status of Unmanned Maritime Vehicles*, cit. p. 481-483.

³⁶⁸ See section 2(c) of the previous chapter.

rules on maritime jurisdiction. However, and quite surprisingly, this topic has not been particularly debated by international lawyers yet³⁶⁹. In comparison to what was noted with regard to the applicability of rules on safety of navigation³⁷⁰, this (specular) topic is not currently in-depth analyzed³⁷¹.

This silence makes the following study even more important. Although today MASS are mainly used to conduct trials within States' internal waters³⁷², nothing excludes that in a near future the recourse to autonomous ships will strongly increase³⁷³.

From a structural perspective, then, this study will be divided into two main subsections. The first one (section 4(b)) will be dedicated to understanding whether the use of MASS may be regulated by the same rules setting the allocation of States' jurisdictional powers over "traditional" ships. In this respect, section 4(b)(i) will address the question of *whether MASS may be considered as ships for jurisdictional purposes*. This dilemma emerges by simply considering that, unlike traditional ships, MASS are not necessarily the "place" where human activities occur. Accordingly, such a new factual reality questions the possibility to define these two new artifacts with the same term ("ship")³⁷⁴.

In close connection with this, section 4(b)(ii) will deal with the issue concerning the operability of the regime of flag State jurisdiction to the use of MASS. Since ancient

³⁶⁹ Very recently, two visionary scripts (McLAUGHLIN R.; KLEIN N., *Maritime Autonomous Vehicles and Drug Trafficking by Sea: Some Legal Issues*, cit., p. 407-408; PETRIG A., *Unmanned offender and enforcer vessels and the multi-dimensional concept of 'ship' under the United Nations Convention on the Law of the Sea*, cit.) limitedly address the issue concerning the exercise of State criminal jurisdiction of unmanned ships. Beyond this recent work, this author did not find any research already published aimed at generally addressing the issue concerning the allocation of State jurisdiction over MASS.

³⁷⁰ See note 20 of the first chapter of the present research.

³⁷¹ In this regard, it must be stressed that the general topic of the legal status of MASS is in-depth analyzed by scholars (see note 135 of the present chapter). However, what is still not until now particularly debated is the applicability of UNCLOS rules on the allocation of State jurisdictional powers over these new means of maritime transport. Quite in a pioneering way, see what hinted by SICCARDI F., *Le navi autonome*, cit., p. 852: «[...] di significativa portata è quello del link fra nave e bandiera anche nella prevedibile struttura organizzativa dell'operatore di *unmanned ship* sembra suggerire criticità e comportare la necessità di una revisione delle norme UNCLOS sulla *jurisdiction* dello Stato sulle proprie navi».

³⁷² See section 2 of the first chapter of the present research.

³⁷³ See sections 1 and 2 of the introduction of this thesis.

³⁷⁴ MUSI M., *Il concetto giuridico di nave*, cit., p. 123: «L'evoluzione a cui si sta assistendo sta modificando profondamente la percezione fino ad oggi acquisita della "nave", intesa sia come *res* sia come comunità viaggiante, venendo meno una caratteristica che, nonostante i marcati cambiamenti subiti negli ultimi due secoli, si era sempre conservata: la presenza dell'elemento umano. Sono sorti, pertanto molteplici interrogativi circa la necessità o meno di riconsiderare il concetto di "nave" ai fini dell'assoggettabilità di tali nuove fattispecie alle norme di Diritto Marittimo domestiche ed uniformi, per non dover rischiare di affrontare le conseguenze di un pericoloso sostanziale vuoto regolatorio».

times, States are used to grant their nationality to “traditional” ships; this practice has consolidated into the institute of flag State jurisdiction. In this respect, this research will investigate the possibility to “give birth” to the same legal relationship between States and MASS. The outputs of this digression will be of twofold importance. From one side, they will shed some light on the concrete applicability of this legal framework to the use of MASS; from the other side, they will further clarify the logical and normative features configuring the regime of flag State jurisdiction, re-opening the above-mentioned debate about its territorial, personal or “*functional*” qualification³⁷⁵.

Once exhausted the study on the theoretical applicability of the existing international rules on State jurisdiction over the use of MASS, section 4(c) will be dedicated to comprehending which *practical implications* may arise from the previously addressed analogical operations. Accordingly, it is intended to understand whether and how the process of “dislocation of navigation” may bring to an overlap of jurisdictional claims over the use of MASS³⁷⁶. Then, particular attention will be focused on how the principle of the exclusivity of flag State jurisdiction on the high seas is challenged by the technology of remote control.

Finally, the present section will end by reporting the conclusions reached during the development of the outlined analysis. In this respect, this research will expose some conclusive remarks concerning the new challenges brought by the process of “dislocation of navigation” to the jurisdictional definition of “ship”, traditionally intended as the “unity” between the subjective and objective elements of navigation.

³⁷⁵ See section 3(b)(i) of this chapter.

³⁷⁶ From a much broader perspective, this issue has been observed by ILC, *Extra Territorial Jurisdiction*, cit., p. 236, para. 34: «Recent developments in technology and the globalization of the world economy, which limit the ability of States to protect their national interests by relying solely on traditional principles of jurisdiction, have contributed to the increasing level of disagreement and uncertainty with respect to certain aspects of the law governing extraterritorial jurisdiction».

b) On the theoretical applicability of UNCLOS rules on State jurisdiction to the use of MASS

i) MASS as “ship” from a jurisdictional perspective

From a legal standpoint, the use at sea of one object instead of another is not neutral³⁷⁷. As noted before³⁷⁸, UNCLOS constantly avails of the *fictio iuris* of treating certain objects as the *synthesis* of specific human activities performed at sea. Following this reasoning, the invention of a new mean of maritime transport may theoretically require the creation of new rules, configuring an innovative legal status. For example, in the past years, it has been observed that the allocation of States’ jurisdiction over ships may be partially different from that regulating the use of MODUs or fixed platforms³⁷⁹.

At the same time, however, it is not always true that the invention of new maritime instruments shall necessarily correspond to new international regulations. Indeed, when there are clear similarities concerning their uses and functions, it is reasonable that the legal framework regulating States’ jurisdiction over a certain pre-existing object may be *analogically* applied to the new one³⁸⁰. For example, there is no reason why the Law of the Sea should not regulate in the same manner State jurisdiction over vessels and over *hovercrafts*, albeit their huge differences between them from a mere ergonomic perspective³⁸¹.

In this respect, the recent rise of MASS poses many issues regarding their legal status. Just looking at the acronym utilized for describing this new technology

³⁷⁷ See section 2(b)(iii) of the present chapter

³⁷⁸ Ibid.

³⁷⁹ See note 134 of the present chapter.

³⁸⁰ In this regard, it is of outstanding clarity what has been observed by LOWE V., *International Law*, cit., p. 50: «The dominant conceptual move that characterizes legal thought here, and everywhere else, is the ‘as if’ move. A particular state of affairs is treated ‘as if’ it were some other, simpler state of affairs. Complex business relationships are treated as if the relationship were defined by the rights and duties set out in a contract; an assertion of jurisdiction is treated as if it were the same as an earlier exercise of jurisdiction which had been regarded as lawful; and so on. The core characteristics of a situation are discerned, and the simplified structures of reality represented by legal rules are mapped on to them, to yield a legal characterization of the situation. This is particularly noticeable in the case of customary international law, where the two-way relationship between rule and reality is particularly evident. Simple, clear rules are inferred from the untidy mass of State practice; and the rule is then reapplied to new, perhaps equally untidy, situations. The new situation is treated as if it were another example of the practice that generated the rule. The new situation in turn is added to the store of examples of the customary law rule, expanding the catalogue of instances — instantiations — of the rule with which some future set of circumstances may be compared. This is reasoning by metaphor; and that is precisely how Law operates. The crucial step is finding the right metaphor».

³⁸¹ See note 132 of the present chapter.

(Maritime *Autonomous Surface Ships*), our mind instinctively thinks of the familiar concept of “ship”³⁸². At the same time, however, since their “autonomous” and “remotely controlled” nature, these new means of maritime transport are immediately perceived as something different from “ordinary vessels”. Generally speaking, the use of the technology of automation is challenging the way of conceiving traditional artifacts of transport. In this regard, it is of remarkable clarity what noted by prof. Crotoof:

«Consider the use of the term “driverless cars” to describe autonomous vehicles. The inherent analogy normalizes something new and dangerous, but it also restricts our understanding and imagination. There is no reason to think autonomous vehicles will look or operate anything like existing cars, just as early cars did not look or operate like “horseless carriages.” An autonomous vehicle need not have a steering wheel or other means of human interaction with the system. And conceiving of autonomous vehicles as driverless cars locks one into a host of existing assumptions, instead of allowing for more imaginative conceptions of what the technology might permit»³⁸³.

The quoted reflection shows the high level of the complexity characterizing the issue concerning the possibility to treat MASS as ships. Moreover, since the absence of an all-encompassing definition of “ship”, this question may give rise to many different answers depending on the specific legal context taken into account³⁸⁴. For example, for what concerns the applicability of rules on safety of navigation, some authors already dwelled on the attribution of the legal status of “ship” to these new maritime instruments³⁸⁵. Again, other scholars investigated this issue with respect to the international crime of piracy³⁸⁶.

³⁸² Centuries ago, Hugo Grotius stated: «The poverty of language compels the use of the same words that are not the same» (GROTIUS H., *The Freedom of the Seas*, cit., translated in English by Alex Struik, 2012, p. Chapter V, p. 25-26). Few centuries later, the philosopher Tocqueville similarly argued that: «L’esprit humain invente plus facilement les choses que les mots: de là vient l’usage de tant des termes impropres et d’expressions incomplètes» (DE TOCQUEVILLE A., *De la démocratie en Amérique*, treizième édition, Paris, 1850, p. 188-189).

³⁸³ CROTOOF R., *Autonomous Weapons Systems and the Limits of Analogy*, Harvard National Security Journal, 2018, p. 80.

³⁸⁴ Romanian Case C-291/18 (see note 153), para. 40: «regarding the concept of what constitutes a vessel [ship], much, of course, depends on the specific context of the provision in question».

³⁸⁵ CALIGIURI A., *A New International Legal Framework for Unmanned Maritime Vehicles?*, cit.; CHIRCOP A., *Maritime Autonomous Surface Ships in International Law*, cit.; KLEIN N., *Maritime Autonomous Vehicles within International Law Framework to Enhance Maritime Security*, cit., p. 251- 253; DEAN P.; CLACK H., *Autonomous Shipping and Maritime Law*, cit., p. 70-72; RINGBOM H., *Regulating Autonomous Ships – Concepts, Challenges and Precedents*, cit.; CAREY L., *All Hands off Deck? The Legal Barriers to Autonomous Ships*, cit.; ALLEN C.H., *Determining the Legal Status of Unmanned Maritime Vehicles: Formalism vs Functionalism*, cit.; VEAL R.; RINGBOM H., *Unmanned Ships*

In section 3(a) of this chapter, this study has limitedly analyzed the definition of “ship” for jurisdictional purposes. Following this methodological choice, this work has already outlined the relevance of what was stated by ITLOS³⁸⁷, according to which “ship” shall be intended as the *unity between the objective and subjective elements of navigation*. In few words, “ship” describes the performance of the activity of navigation itself; since the rationale of UNCLOS rules on States’ jurisdiction is to specify and delimit the authority of States *over* navigation, the reference to the word “ship” is aimed not to limitedly define the objective element, but to describe the human activity of navigation as a whole.

Coherently with this, it should derive that, from a mere jurisdictional standpoint, *the possibility to define MASS as “ships” depends on whether the use of MASS may be equated with the activity of “navigation”*.

For the purposes of the present research, the phrase “navigation at sea” describes every human activity consisting of a movement by water through the use of an object, characterized by the level of technology achieved³⁸⁸. This definition enshrines that the objective and the subjective elements – human involvement and means of maritime transport – are the conceptual core basis of the human activity of navigation. Logically, the eventual absence of one of the two requirements determines that “navigation” is not taking place.

As far as the use of MASS is concerned, it is quite pacific that the objective element is still recurrent. In fact, these new artifacts may surely be considered as means of

and the International Regulatory Framework, cit.; CHWEDCZUK M., *Analysis of the Legal Status of Unmanned Commercial Vessels in U.S. Admiralty Law and Maritime Law*, cit.; VON HEINEGG W. H., *The Exasperating Debate on the Legality of Unmanned Systems*, cit.; PRITCHETT, P. W., *Ghost ships: Why the law should embrace unmanned vessel technology*, cit.; VALLEJO D., *Electric Currents: Programming Legal Status into Autonomous Unmanned Maritime Systems*, cit., p. 410-415; VAN HOOYDONK H., *The Law of Unmanned Merchant Shipping*, cit.

³⁸⁶ CORCIONE C., *Maritime Piracy and New Technologies*, in BEVILACQUA G. (ed.), *Sicurezza umana negli spazi navigabili: sfide comuni e nuove tendenze*, Napoli, 2021, p. 151-162; PETRIG A., *Autonomous Offender Ships and International Maritime Security Law*, in RINGBOM H.; RØSÆG E.; SOLVANG T., (eds.), *Autonomous Ships and the Law*, cit., p. 30-32; PETRIG A., *La ‘Révolution robotique’ en mer et la Convention de Montego Bay: Un défi intepretatif pour ses dispositions relatives à la criminalité maritime?*, *Annuaire du droit de la mer*, 2019, p. 17-43.

³⁸⁷ We mainly refer to the ITLOS decisions *M/V “Saiga”*, cit., para. 106 and *M/V “Virginia”*, cit., para. 127.

³⁸⁸ See section 2(c) of the first chapter of the present research.

maritime transport; although they differ from traditional ships, MASS are artifacts designed for the circulation of people and goods by sea, just like their “ancestors”³⁸⁹.

With regard to the subjective element, instead, the issue concerning its “existence” looks much more problematic. As many times remarked, the use of MASS is characterized by the “dislocation” of the human component of navigation, which may now control the objective element from a remote place. In other words, unlike traditional ships, MASS are not necessarily «vehicle[s] *in which* human activity occurs»³⁹⁰. Therefore, since it may happen that there are no seafarers on board³⁹¹, someone could say that in this occurrence the subjective element of navigation is missing.

From an ergonomic perspective, this misalignment is highly revolutionary. Before MASS, indeed, no technological innovation was able to transform in such a disruptive way the factual conception of the transport at sea. While the shipbuilding industry has continuously evolved over history, navigation has always presupposed the attendance of the subjective element *on board*.

Having said this, however, it should not be forgotten that the use of MASS still implies the performance of certain human behaviours, albeit diverse from the traditional ones. Precisely, due to technological progress, human actors mainly carry out supervisory works: broadly speaking, they must monitor the smooth running of automated operations³⁹². In any case, from an ergonomic (and logical) point of view, persons are still involved in the use and the control of the objective element of navigation.

According to these reflections, it is necessary to understand whether the human involvement conducted from a remote location may be considered as the subjective element of navigation. In this regard, limiting the analysis from a mere jurisdictional perspective, it is here sustained that the answer to this question is affirmative. Indeed, referring to the ITLOS jurisprudence, suffice it to recall (again) what was stated by the International tribunal in the *Saiga* judgement:

³⁸⁹ VAN HOOYDONK H., *The Law of Unmanned Merchant Shipping- An Exploration*, cit., p. 406-409.

³⁹⁰ O’CONNELL D. P., *The International Law of the Sea*, cit., p. 735 (emphasis added).

³⁹¹ We refer to the third and fourth classes of automation, in compliance with what is reported in section 3 of the introduction to the research.

³⁹² See note 388 of this chapter.

«the ship [objective element], everything on it, and every person involved or interested in its operations [subjective element] are treated as an entity linked to the flag State»³⁹³.

From the reading of this *obiter dictum*, what has been already noted is that the jurisdictional definition of “ship” includes not only the objective element but also the subjective one. In addition, it must be now highlighted that ITLOS does not explicitly require the necessary *attendance on board* of the human component; literally, the Saiga decision refers to every person «involved or interested in its operations». The adoption of such a generic expression manifests that the scope of the definition under study may potentially include even human agents working from a remote location. Indeed, where their activities are instrumental for the command of the object-ship, they surely are «involved and interested» in the performance of the activity of navigation.

In this specific regard, it must be added what affirmed by the Permanent Court of Arbitration (PCA) in the *Arctic Sunrise Arbitration*. In addressing the dispute between the Netherlands and Russia, the PCA has explicitly opened to an interpretation of “ship” that includes within the “unit” even the personnel working from the shore. Precisely, the Tribunal considered:

«[...] the Arctic Sunrise to be a unit such that its crew, *all persons and objects on board, as well as* its owner and every person involved or interested in its operations, are part of an entity linked to the Netherlands as the flag State»³⁹⁴.

In compliance with the reported jurisprudence, it may be concluded that, although the use of MASS consists of a revolutionary way of crossing waters, from a mere legal perspective, this action may be still considered as of “navigation”. This conclusion is subsumed by the fact that the mentioned international decisions do not explicitly require that the subjective element of navigation must be necessarily located on board. Traditionally, it is intuitive to conceive navigation as the “art” of seafaring; however, the international law of maritime jurisdiction does not consider the attendance of people on board as an essential feature of the related legal concept of “navigation”³⁹⁵.

³⁹³ *M/V “Saiga”*, cit., para. 106 (emphasis added).

³⁹⁴ *The Arctic Sunrise Arbitration*, cit., para. 172 (emphasis added).

³⁹⁵ VAN HOOYDONK H., *The Law of Unmanned Merchant Shipping- An Exploration*, cit., p. 409: «it may be concluded with a considerable degree of certainty that having a crew on board, including a

Accordingly, *once assumed the legal “truthiness” of the concept of “ship as a unit”, MASS may be potentially considered as “ships” for jurisdictional purposes.* Therefore, UNCLOS rules on the allocation of State jurisdiction over “ships” may be theoretically applied over MASS.

This conclusion – strongly based on an evolutionary approach in interpreting UNCLOS rules³⁹⁶ – is admitted in International Law. Indeed, the UNCLOS regime is based on a “living instrument”³⁹⁷, that opens up to dynamic interpretations of its provisions. Particularly, it has been already observed that the word “ship” is not conventionally defined by the Convention. Then, since the absence of a specific definition of such a generic term, it may be presumed that State parties intended to allow extensive interpretations to this word³⁹⁸, in order not to exclude even future means of maritime transport, such as the use of MASS.

Furthermore, the proposed interpretation is coherent with the object and purpose of UNCLOS rules on maritime jurisdiction. Indeed, as many times remarked, their task is to allocate States’ powers *over* the activity of navigation³⁹⁹. Coherently, these provisions are not particularly interested in regulating the ergonomics of navigation. In this respect, they remain silent on the establishment of the factual features of the human activity under study⁴⁰⁰.

master, is not generally regarded as an essential part of the notion of a ship in the regulatory definitions of the ship available to us».

³⁹⁶ The analysis on the evolutionary approach in interpreting written rules, see section 4(a) of the first chapter of the present research.

³⁹⁷ ITLOS, Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission, Advisory Opinion, cit., separate opinion of Judge Lucky. For a doctrinal analysis of this issue, we refer to note 326 of the previous chapter of this research. With specific regard to the evolutionary interpretation of UNCLOS with regard to autonomous ships, see PETRIG A., *The Commission of Maritime Crimes with Unmanned Systems: An Interpretative Challenge for UNCLOS*, cit.

³⁹⁸ PETRIG A., *Autonomous Offender Ships and International Maritime Security Law*, cit., p. 31: «the generic term “ship” is interpreted in the light of present-day conditions, which makes it perfectly apt to accommodate new technologies, such as remote-controlled boats». Similarly, see MCKENZIE S., *When is a Ship a Ship? Use by State Armed Forces of Uncrewed Maritime Vehicles and the United Nations Convention on the Law Of The Sea*, cit., p. 12: «[...] a cursory glance at the history of maritime technology shows that the drafters must have been aware that technological change would occur in shipbuilding, navigation and means of propulsion and that they would have intended that UNCLOS be able to accommodate these changes. Any definition of ‘ship’ in UNCLOS would have to encompass the range of possible vessels, with significant variation in construction methods, purposes and sizes».

³⁹⁹ As it has been noted at the beginning of this chapter, the history and the evolution of International Law of the Sea «may be narrated as a search for coherent rules to regulate the projection of state authority over the oceans» (STEPHENS T.; ROTHWELL D. R., *The LOSC Framework for Maritime Jurisdiction and Enforcement 30 Years on*, cit., p. 701-702).

⁴⁰⁰ Danish Maritime Authority Report, Analysis of Regulatory Barriers to the Use of Autonomous Ships, December 2017, p. 40: «UNCLOS is very wide and abstract in its formulation of the competence

Therefore, once admitted the validity of the corollary “ship as a unit”, there is no reason why it should be precluded the operability to UNCLOS rules on maritime jurisdiction to the use of MASS: although MASS navigation is (mainly) conducted from shore, *it is still navigation*, and, therefore, it is still subject to the UNCLOS rules provided for.

ii) The possibility to grant State’s nationality to MASS

Once admitted the validity of the proposed legal equivalence between MASS and ships for jurisdictional purposes, it should derive that the international rules on State jurisdiction over ships operate even with regard to the innovative use of autonomous maritime vehicles. Within this legal framework, the regime of flag State jurisdiction – according to which the activity of navigation is primarily subject to the sovereignty of the State of the nationality of the ship – stands for relevance. Therefore, one may conclude that, through the granting of their nationality to these new means of maritime transport, States are allowed to configure an analogous jurisdictional connection between them and MASS⁴⁰¹.

This deduction is supported by recent doctrinal studies⁴⁰², according to which, since States are free in fixing the conditions for the grant of their nationality to ships⁴⁰³, no

of flag States and actually leaves it to subsequent detailed regulation within the IMO to establish the obligations of flag States. This provides flexibility when it comes to interpreting the principles of the convention in accordance with technological and societal developments, inter alia in relation to autonomous shipping».

⁴⁰¹ This question has been already posed by PETRIG A., *Unmanned offender and enforcer vessels and the multi-dimensional concept of ‘ship’ under the United Nations Convention on the Law of the Sea*, cit.; ALLEN C.H., *Determining the Legal Status of Unmanned Maritime Vehicles: Formalism vs Functionalism*, cit., p. 488.

⁴⁰² VEAL R.; TSIMPLIS M.; SERDY A., *The Legal Status and Operation of Unmanned Maritime Vehicles*, cit., p. 26-27: «Arguably the correct interpretation must be that the definition of a ship is left to individual states’ discretion. To the extent that UNCLOS provides only for rights between states, its objective arguably is the delimitation of rights and obligations of “ships” as these are defined under national laws. Each state agrees with the other contracting states on what rights it can exercise through the commercial, naval, and other uses of its ships. Therefore, the search for the definition of a ship is misguided and irrelevant in the context of UNCLOS. Support for this argument can be found under Article 91 of UNCLOS [...]». On the same advice, see MUSI M., *Il concetto giuridico di nave*, cit., p. 5; ALLEN C.H., *Determining the Legal Status of Unmanned Maritime Vehicles: Formalism vs Functionalism*, cit., p. 516; VEAL R.; TSIMPLIS M., *The Integration of Unmanned Ships into the Lex Maritima*, cit., p. 308; VAN HOOYDONK H., *The Law of Unmanned Merchant Shipping- An Exploration*, cit., p. 409.

⁴⁰³ UNCLOS, art. 91,1.

international rule forbids them to even submit MASS under their jurisdiction. Moreover, it seems that the very first States that started addressing this issue agree on the reported position⁴⁰⁴.

In this respect, however, the differences existing between traditional and autonomous ships may potentially generate some doubts regarding the validity of the exposed legal syllogism. Indeed, the fact that the use of MASS determines such a new ergonomic relationship between the objective and subjective elements of navigation acquires a particular relevance when dealing with the analysis of the normative foundations of the regime of flag State jurisdiction.

As it has been reported in the previous pages of this chapter⁴⁰⁵, international lawyers are quite divided on the issue concerning the legal (and logical) grounds building up the exercise of State sovereign powers over national ships: while some scholars conceive the regime of flag State jurisdiction as mainly territorial, others authors are convinced of its (quasi) personal nature; furthermore, more others believe that the nationality of ships is a *sui generis* criterion for the allocation of States' jurisdiction, which does not fit within any of the two mentioned categories.

In this regard, the position of this author is that neither the territorial theory nor the personal one justify the extension of the regime of flag State jurisdiction to the use of MASS; accordingly, the eventual applicability of this set of rules to autonomous ships emphasizes, even more, the *sui generis* nature of the international regime of flag State jurisdiction. In this respect, it is now intended to report the main critical concerns emerging from the attempt to justify the existence of flag State jurisdiction over MASS when adopting the territorial or the personal doctrines.

Starting with the first (1), it has been previously observed that many experts assimilate the ship to the territory of the State the flag of which it flies, so that the flag State can exercise its authority upon the ship due to its (quasi) *territorial sovereignty*⁴⁰⁶. According to the territorial theory, the jurisdictional link occurring between the human component of navigation and the flag State is the object-ship, intended as a "floating piece of State territory". In compliance with this *fictio iuris*, it necessarily follows that

⁴⁰⁴ See Maritime UK, Maritime Autonomous Surface Ships UK Code of Practice, 2019, p. 81; Danish Maritime Authority Report, Analysis of Regulatory Barriers to the Use of Autonomous Ships, December 2017, p. 37-38.

⁴⁰⁵ See section 3(b)(i) of the present chapter.

⁴⁰⁶ Ibid.

flag State jurisdiction presents “physical” borders; put differently, while every person on board is under flag State jurisdiction, no people geographically placed outside the ship is submitted to the sovereignty of that State.

Having said this, it is quite intuitive that the use of MASS challenges the goodness of the reported theory. Indeed, since these means of maritime transport may be (fully or partially) controlled from shore, one may argue that remote operators are not covered by flag State jurisdiction. In the author’s view, this conclusion is not acceptable. As noted in the previous chapter of this research, in fact, MASS belonging to the third and fourth levels of automation are completely controlled from shore, which means that even the master⁴⁰⁷, the person in charge of the activity of navigation, could not be subject to the jurisdiction of the flag State of nationality of the ship. This conclusion appears to be in contrast with the principle according to which flag State jurisdiction necessarily covers:

«the ship, everything on it, and *every person involved or interested in its operations*»⁴⁰⁸.

Before MASS, the idea that the adoption of the territorial doctrine could bring to this legal paradox could not even be assumed; logically, since the human component was necessarily placed on board, this theory has always centred the factual reality of navigation. Nowadays, instead, the locution «every person involved or interested in its operations» assumes growing importance; applying what stated by the ITLOS jurisprudence, the regime of flag State jurisdiction can now even cover the conducts of personnel performing the activity of navigation from a remote place⁴⁰⁹. Therefore, since the territorial theory is not capable of justifying the attribution of extra-territorial jurisdictional powers to the flag State over this emerging class of (sea?) workers, it seems that this doctrine needs to be definitively dismissed.

Continuing the analysis, as far as the quasi-personal theory is concerned (2), even this alternative approach seems unable to well-describe the jurisdictional connection occurring between the flag State and the use of MASS. According to the promoters of this doctrine⁴¹⁰, flag State jurisdiction finds its origins in the relationship between the

⁴⁰⁷ See section 5(e)(i) of the first chapter of the present research.

⁴⁰⁸ *M/V “Saiga”*, cit., para. 106 (emphasis added).

⁴⁰⁹ See section 4(b)(i) of the present chapter.

⁴¹⁰ See notes 216 and 217 of the present chapter.

flag State and the *community of people at sea*; broadly speaking, in the absence of a territorial nexus between seafarers performing navigation and any State, authoritative scholars conceive flag State jurisdiction as the international legal regime regulating the activities of *a floating community of people* on board the ship⁴¹¹.

Intuitively, the rise of autonomous navigation precludes the possibility to define the human component as a “maritime society at sea”. As many times remarked, the phenomenon of the dislocation of navigation allows to perform this human activity from shore; beyond the fact that the MASS belonging to the first and the second classes of automation still require the presence of seafarers on board, new ships that are characterized by more intense levels of automation are fully controlled by operators located within the territory of one or more States.

Once acknowledged this, it is difficult to retain that the eventual configuration of a jurisdictional relationship between the State of nationality and MASS could be based on quasi-personal grounds. Today, the eventual adoption of this approach – properly born to avoid the recourse to a flat and specious *fictio iuris* for justifying jurisdiction (*i.e.* the equivalence between ship and territory)⁴¹² – risks now of being subject of similar critiques; in the era of automation, indeed, it seems quite forced to conceive the subjective element of navigation as a “community of people at sea”, by simply considering that a good part of the “crew” (remote operators) is not on board and works from shore. This is valid for what concerns even lower levels of automation rather than MASS of the third and fourth classes.

In compliance with these reflections, neither the adoption of the territorial nor the quasi-personal theories look capable of well explaining the operability of flag State jurisdiction over MASS. In this regard, it seems that the unique possible solution is to stress even more the *sui generis* nature of the jurisdictional regime provided by the Law of the Sea.

As enshrined before, the pulsing heart of the institute under study is to connect the performance of the activity of navigation to States; in this respect, flag State jurisdiction

⁴¹¹ ZAMUNER E., *La tutela delle navi private nel diritto internazionale*, cit., p. 75.

⁴¹² In this regard, see what has been argued by one of the most renowned supporters of the personal theory, LOWE V., *International Law*, cit., p. 175: «One important variety of nationality jurisdiction gives States jurisdiction over all ships and aircraft that sail or fly under the State’s flag. This is sometimes treated as a kind of quasi-territorial jurisdiction; but it is better to regard it as a quasi-national jurisdiction in order to resist the temptation to regard ships and aircraft as pieces of floating or flying territory of the State, which they are not».

must be intended as a *functional criterion* for the allocation of States' sovereign powers over ships. Put differently, it incardicates the performance of the activity of navigation within the public international legal framework, where States enjoy the freedom of navigation⁴¹³.

In the author's view, this is the starting point for addressing the issue concerning the possibility to apply international rules on maritime jurisdiction to MASS. Indeed, starting from this perspective, it is finally comprehensible why experts⁴¹⁴ admit that States can grant their nationality to these new means of maritime transport as they are used to do with regard to traditional ships. Precisely, once recognized that the MASS may be seen as "ships", once remarked that flag State jurisdiction is the normative instrument regulating the allocation of State powers over the objective and subjective elements of navigation, it logically derives that both the object-MASS and the human component controlling it (independently from where they are located) may be subject to the jurisdiction of the State granting its nationality.

On the contrary, as far as flag State jurisdiction is conceived as territorial or quasi-personal, the possibility to enlarge its operability to the use of MASS remains quite forced and problematic. Unlike traditional ships, indeed, remotely controlled vessels are not the physical place where human activities occur; moreover, they are not even a community of people necessarily located at sea. Therefore, the applicability of flag State jurisdiction over MASS is comprehensible as far as it is based on functional grounds. Otherwise, it should be concluded that this legal regime cannot be applied to the growing use of autonomous ships.

c) Innovative implications emerging from the application of UNCLOS rules on jurisdiction to the use of MASS

According to what has been observed so far, the international legal regime on State jurisdiction over the activity of navigation may theoretically cover the innovative use of MASS. This conclusion leads to many practical implications; in order to exhaust the

⁴¹³ See section 3(b)(i) of the present chapter.

⁴¹⁴ See note 402 of the present chapter.

present study about the allocation of States' sovereign powers over autonomous navigation, the following pages are precisely dedicated to understand which innovative challenges emerge from the application of the law of maritime jurisdiction to the fast-growing use of MASS.

At a preliminary level, it seems that the process of “dislocation of navigation” is capable of amplifying, even more, one of the most renowned characteristics of modern maritime transport, *i.e. the multiplicity of the national interests involved in the performance of the activity of navigation*⁴¹⁵. Notoriously, it is quite rare to hear about the navigation of a ship, owned and chartered by a private company of the same nationality, flying the flag of that same State, and controlled by seafarers sharing the same national origins. Accordingly, this is just the very opposite of what usually happens in the contemporary ages. Quite commonly, in fact, ships are owned and chartered by private companies whose nationality differs from that of the flag; moreover, the subjective element of navigation is usually composed of people coming from different countries; furthermore, during navigation, a ship may enter into many different marine zones, which are subjects to the jurisdiction of several coastal States.

Interestingly, the use of MASS adds other pieces to this pre-existing “multinational” puzzle. In this respect, the fact that unmanned ships are (fully or partially) remotely-controlled determines that further States may take part in the jurisdictional balance over the composite activity of navigation. Precisely, since general International Law recognizes that States enjoy jurisdictional powers over their territory⁴¹⁶ and with regard to their nationals⁴¹⁷, *even the State in whose territory remote operators are placed and the States of nationality of these individuals may potentially claim the exercise of their sovereign powers over MASS navigation*. Put differently, the process of the “dislocation of navigation” gives rise to innovative jurisdictional claims, some of which are linked to

⁴¹⁵ Well-conscious of this fact, in the *Saiga case*, cit., para. 107, ITLOS observed that: «The Tribunal must also call attention to an aspect of the matter which is not without significance in this case. This relates to two basic characteristics of modern maritime transport: the transient and multinational composition of ships' crews and the multiplicity of interests that may be involved in the cargo on board a single ship. A container vessel carries a large number of containers, and the persons with interests in them may be of many different nationalities. This may also be true in relation to cargo on board a break-bulk carrier. Any of these ships could have a crew comprising persons of several nationalities. If each person sustaining damage were obliged to look for protection from the State of which such person is a national, undue hardship would ensue». On the same view, see PAIK J.H., *The Tribunal's Jurisprudence and its Contribution to the Rule of Law*, cit., p. 65.

⁴¹⁶ See section 2(a) of this chapter.

⁴¹⁷ Ibid.

the objective element (located at sea), while others to the subjective one, (fully or partially placed within the territory of one or more States).

In order to facilitate the following analysis, it seems useful to provide a concrete example of how this jurisdictional puzzle could be made up. Imagine a partially remotely controlled ship flying the flag of the State of *Panama* (1). This embarkation is owned by a *Swedish* (2) company and chartered by a *Norwegian* one (3). On board of it, ten seafarers (of which seven are *Thai* (4) and three *Filipinos* (5)) perform supervisory works. Since the ship belongs to the second class of automation⁴¹⁸, it is remotely controlled by a team of six individuals working from *India* (6). This picture is made even more complex by the fact that remote operators are not Indians, but *Spanish* (7). Now imagine that, in the course of navigation, the ship enters within the EEZ of the State of *Brazil* (8) and, subsequently, it docks in an *Argentinian* port (9).

What clearly emerges from the reading of this imaginary (but realistic) case study is that – at least – nine States are somehow related to the performance of the activity of navigation.

As anticipated, the mere fact that nowadays the activity of navigation has assumed a «transient and multinational»⁴¹⁹ nature is not *per se* something new. Indeed, the Law of the Sea is fully aware of the potential overlap of jurisdictional claims. In this regard, in a nutshell, the UNCLOS provisions try to avoid as much as possible jurisdictional conflicts among coastal, port and flag States, albeit not always excluding an eventual overlap of their concurring jurisdiction.

Instead, the highly innovative characteristic highlighted by the above-provided example is the entrance into the “jurisdictional arena” of – at least – two new international subjects: the State where remote operators are located (India in the case at stake) and the State of the nationality of them (Spain). In fact, according to customary International Law, since they respectively play the role of the territorial State and of the State of the nationality of remote operators, intense jurisdictional links connect these two countries to MASS navigation. At the same time, however, these individuals remain under the jurisdiction of the flag State (Panama) and, depending on where navigation takes place, of the coastal (Brazil) and the port (Argentina) States.

⁴¹⁸ Recalling the four classes of automation adopted by IMO. In this regard, see section 3 of the introduction to the research.

⁴¹⁹ *Saiga case*, cit., para. 107.

From a jurisdictional standpoint, the configuration of such a new jurisdictional balance over the activities performed by remote operators is not the unique relevant factual circumstance. Indeed, although the human activity is now (mainly) performed from shore, the object MASS is still at sea; moreover, it is absolutely possible there are seafarers on board.

For all these reasons, it seems useful to distinguish the following study in two parts: accordingly, section 4(c)(i) will be dedicated to the analysis of States' jurisdiction over remote operators. Then, the succeeding one (section 4(c)(ii)) will deal with the specular topic concerning States' jurisdiction over the object-MASS and the human component (eventually) on board of it. Only after having separately observed these two sides of the same coin, it will be possible to conclude the development of the present research by reporting the most relevant conclusions concerning the legal implications arising from the application on the law of maritime jurisdiction to the use of MASS.

i) The allocation of States' powers over remote operators

Starting with the analysis of the configuration of the jurisdictional balance over the activities performed by remote operators, it has been already noted that the growing use of unmanned ships may bring to a potential overlapping of many jurisdictional claims, respectively invoked by the (strictly) territorial State (1), the State of the nationality of the remote operators (2), the flag State (3) and the coastal State (4) and the port State (5). However, at the state of the art, no specific Law of the Sea rule seems capable of regulating this new factual reality. In synthesis, one of the main novelties brought by remote navigation is that, unlike "traditional maritime jurisdictional conflicts" among port, coastal and flag States (whose composition is provided by UNCLOS), *the configuration of this innovative and more complex jurisdictional balance is not precisely regulated by the Law of the Sea*. Indeed, and quite intuitively, this eventuality was not taken into consideration by States neither before nor after the process of negotiation of UNCLOS. The current *vacuum juris* poses the follow-up question: how the jurisdictional balance over MASS remote operators should be configured nowadays?

In this regard, it seems that the outlined “jurisdictional tsunami” may be observed through the lens of the general concepts founding the *customary law of jurisdiction*. Indeed, as noted by prof. Koskenniemi:

«the rules of general law [...] come to operate if the special regime fails to function properly»⁴²⁰.

General International Law sets a fundamental distinction between the exercise of *prescriptive* (1) or *enforcement* (2) jurisdiction; for the purposes of the present discussion, it seems useful to maintain this methodological classification even when addressing the specific issue object of analysis.

With regard to prescriptive jurisdiction (1), a dual approach exists in the process of explaining the allocation of States’ regulative powers over persons, objects and activities. On one hand, it stands the ‘classic’ theory, which founds its origins in the renowned *Lotus case*. As many times remarked, on that occasion, the PCIJ affirmed that the exercise of State prescriptive powers, where non explicitly excluded by international law, is always allowed. In other words (and again):

«Restrictions upon the independence of States cannot therefore be presumed»⁴²¹.

On the other hand, alternatively, it has been argued that the exercise of prescriptive jurisdiction must always be necessarily justified by the existence of a clear connection (or link) between that conduct and the State: in compliance with this second approach, whenever this condition is not fulfilled, the State has no right to exercise prescriptive jurisdictional powers⁴²².

⁴²⁰ ILC, *Fragmentation of International Law*, cit., para. 192, p. 100. With specific regard to the law of jurisdiction, this position has been re-affirmed by the ILC, *Extra Territorial Jurisdiction*, Yearbook of the International Law Commission, cit., p. 236, para. 36.

⁴²¹ *The Case of the S.S. “Lotus”*, p. 18.

⁴²² ILC, *Extra Territorial Jurisdiction*, Yearbook of the International Law Commission, cit., p. 236, para. 42: «It is generally accepted that in order for a State to validly assert its jurisdiction over a natural or legal person, property or situation, it must have some connection to such person, property or situation». In scholarship, this position was supported by FIORE P., *Trattato di diritto internazionale pubblico*, cit., p. 390. More recently, on the same view, see IACOB O., *Principles Regarding State Jurisdiction in International Law*, cit.; RYNGAERT C., *Jurisdiction in International Law*, cit.; CHENG B., *The Extra-Territorial Application of International Law*, cit.; MANN F., *The Doctrine of Jurisdiction in International Law*, cit., p. 46.

Turning back to the case at stake, in the absence of prohibitive rules, the adoption of the first-mentioned approach clearly grants to *every State* the faculty of exercising prescriptive powers over remote operators. Actually, a similar conclusion is also reached by referring to the latter theoretical position; indeed, every State here involved may potentially justify the performance of its sovereign rights over remote operators. Precisely, the flag State enjoys *functional* jurisdiction over the human component of navigation, independently of where navigation occurs. Then, the coastal State may invoke its sovereign rights according to the specific declinations that the spatial criterion assumes depending on where navigation is performed. Furthermore, the port State and the “strictly territorial” State enjoy *territorial* jurisdiction. Finally, the State of the nationality of remote operators may have relevant interests in regulating certain activities performed by (or against) their nationals⁴²³.

To sum up, regardless of the adoption of one or the other of the two mentioned approaches, it derives that the conduct of remote operators may be subject to a *concurrency of State jurisdictions*. In the absence of specific provisions regulating the allocation of States’ powers over this new class of sea-workers, this scenario seems to be recognized and accepted by general International Law⁴²⁴. Precisely, as observed by prof. Cheng:

«Almost inevitably [...] jurisdiction [prescriptive jurisdiction] is most of the time concurrent»⁴²⁵.

This conclusion is confirmed by what authoritatively stated in the *Lotus* judgement, according to which a State is substantially free in exercising *prescriptive* powers even beyond the extension of its territorial sovereignty⁴²⁶. Put differently, even States other

⁴²³ We have already noted that the personality principle declines itself in many shapes and forms. For example, we referred to the *protective principle* and to the *passive personality principle*. In this regard, see BENNETT A., *The Sinking Feeling: Stateless Ships, Universal Jurisdiction, and the Drug trafficking Vessels Interdiction Act*, cit., p. 437.

⁴²⁴ VEZZANI S., *Jurisdiction in International Fisheries Law*, cit., p. 209: «no general rules under customary international law exist, that establish a priority and resolve conflicts between legitimate jurisdictional claims».

⁴²⁵ CHENG B., *The Extra-Territorial Application of International Law*, cit., p. 140. Contrarily to this position, see MEYERS H., *The Nationality of Ships*, cit., p. 31-52. For a more general analysis in this regard, see RYNGAERT C., *Jurisdiction in International Law*, cit., p. 142-144.

⁴²⁶ *The Case of the S.S. “Lotus”*, p. 19: «It does not [...] follow that international law prohibits a State from exercising jurisdiction in its own territory, in respect of any case which relates to acts which

than the territorial one may potentially carry out (prescriptive) powers over a certain human activity. Allegedly, this leads to the logical conclusion that, to date, the concurrency of prescriptive jurisdiction over remote operators is not only tolerated, but also highly expected by International Law.

Shifting now the attention to the regulation of the *jurisdiction of enforcement* over remote operators (2), the reconstruction of this jurisdictional balance is a more delicate process. In this regard, a corollary of the general theory of sovereignty, upon which the international legal system is founded, solemnly recognizes:

«[the] right of every sovereign State to conduct its affairs without outside interference»⁴²⁷.

Precisely, States shall refrain from conducting *coercive interventions*⁴²⁸ which may be detrimental to the integrity of the territorial sovereignty of other consociates⁴²⁹. With specific regard to the law of jurisdiction⁴³⁰, given that the performance of enforcement activities necessarily implies the *coercive* supremacy of the State over individuals, it follows a *general prohibition of any State from enforcing sovereign powers outside its territory*⁴³¹.

The general theory of the exclusivity of enforcement powers of the territorial State is further confirmed by an *a contrario* reasoning. Indeed, the hypothetical admission of analogous powers to States other than the territorial one would compress the certainty

have taken place abroad, and in which it cannot rely on some permissive rule of international law» (emphasis added).

⁴²⁷ *Military and Paramilitary Activities in and against Nicaragua*, cit., para. 202. In scholarship, see JESSUP P., *The Law of Territorial Waters and Maritime Jurisdiction*, New York, cit., p. 135: «By virtue of this “jurisdiction” [territorial jurisdiction] a state has the exclusive legal privilege of acting through its agents upon persons and property while they are within territorial limits, and a right that no other state shall so act».

⁴²⁸ *Military and Paramilitary Activities in and against Nicaragua*, cit., para. 205: «*The element of coercion, which defines, and indeed forms the very essence of, prohibited intervention*». In this regard, see CASSESE A., *International Law*, London, 2005, p. 98-100; SAPIENZA R., *Il principio di non intervento negli affari interni*, Milano, 1990.

⁴²⁹ CANNIZZARO E., *La sovranità oltre lo Stato*, cit., p. 72: «la sovranità determina il diritto esclusivo di ciascuno Stato di regolamentare la vita sociale nel proprio territorio. A tale diritto corrisponde, quindi, l’obbligo di ciascuno Stato di rispettare l’analoga pretesa da parte dei propri pari».

⁴³⁰ This topic is in-depth analyzed by RYNGAERT C., *Jurisdiction in International Law*, cit., p.144-146.

⁴³¹ ILC, *Extra Territorial Jurisdiction*, Yearbook of the International Law Commission, cit., p. 230, para. 6: «Principles of international law relating to the territorial integrity and independence of States prevent the organs of one State from being physically present or performing their functions in the territory of another State without the consent of the latter».

and the content of territorial sovereignty in such a way as to empty it of its meaning, and so undermining the normative structure upon which the international legal system finds its origins⁴³². Accordingly, enforcement activities conducted in foreign countries are usually not admissible without the consent of the territorial State⁴³³. On this matter, the equilibrium reached among the protection of concurrent sovereign powers is (again) highlighted by the PCIJ in the *Lotus* decision:

«the first and foremost restriction imposed by international law upon a State is that - failing the existence of a permissive rule to the contrary - it may not exercise its power in any form *in the territory of another State*. In this sense jurisdiction is certainly territorial»⁴³⁴.

Accordingly, with regard to the activities performed by the MASS remote operators, the applicability of the customary principle of non-intervention reasonably leads to the conclusion that the strictly territorial State enjoys *exclusive* enforcement jurisdiction over this emerging class of (sea?)-workers⁴³⁵. Indeed, since they are located within its territory, remote operators are subject to the sovereignty of that specific State. Therefore, flag, coastal and port States should refrain from performing coercive powers over the subjective element of MASS navigation. Otherwise, they would act in breach of the customary principle of non-intervention. Put differently, it is arguable that, at the

⁴³² GIULIANO M., *Diritto Internazionale*, cit., p. 170: «La norma internazionale generale dalla quale fondamentalmente dipende, nel quadro dell'ordinamento internazionale, la delimitazione spaziale delle attività degli Stati è in definitiva una norma giuridica il cui contenuto si articola unicamente nel diritto (soggettivo) dello Stato a che gli altri Stati si astengano dal penetrare e dall'agire, senza il suo consenso, nel proprio territorio, sul presupposto dello stabile e normale esercizio della propria autorità in tale cerchia spaziale». More recently, in the case concerning the *Sovereignty over Pedra Branca/Pulau Batu Puteh, Middle Rocks and South Ledge* (Malaysia v. Singapore), Judgment, I.C.J. Reports, 2008, para. 122, the ICJ recalled that: «Critical for the Court's assessment of the conduct of the Parties is the central importance in international law and relations of State sovereignty over territory and of the stability and certainty of that sovereignty. Because of that, any passing of sovereignty over territory on the basis of the conduct of the Parties, as set out above, must be manifested clearly and without any doubt by that conduct and the relevant facts. That is especially so if what may be involved, in the case of one of the Parties, is in effect the abandonment of sovereignty over part of its territory».

⁴³³ LOWE V., *International Law*, cit., p. 184; ILC, *Extra Territorial Jurisdiction*, Yearbook of the International Law Commission, cit., p. 235-236, para. 32.

⁴³⁴ *The Case of the S.S. "Lotus"*, p. 18 (emphasis added). On the same approach, see *Islands of Palmas Case* (Netherlands v. USA), (PCA), Arbitral Awards, 4 April 1928, p. 838. In the current age, on the same advice, see VEZZANI S., *Jurisdiction in International Fisheries Law*, cit., p. 209.

⁴³⁵ This position seems to be supported by PETRIG A., *Unmanned offender and enforcer vessels and the multi-dimensional concept of 'ship' under the United Nations Convention on the Law of the Sea*, cit.: «Over the person in control of the unmanned ship who is abroad, by contrast, the flag state has only very exceptionally and in limited instances prescriptive jurisdiction, and it is not allowed to enforce its law against that person on foreign territory unless the territorial state consents».

state of art, *enforcement jurisdiction over remote operators could be seen as a prerogative of the “strictly territorial” State, independently of where the object MASS is located.*

However, the proposed normative scheme has not an imperative nature⁴³⁶; on the contrary, it may be derogated by more specific international rules aimed at regulating the allocation of States’ powers in an alternative way⁴³⁷. Accordingly:

*«In the absence of any treaty or other consensual arrangements whereby this state of affairs is modified, whenever a conflict arises, territorial jurisdiction [enforcement jurisdiction] overrides all other types of jurisdiction»*⁴³⁸.

To sum up, the exposed allocation of States’ powers is valid only in the absence of a specific rule that says the contrary. This means that, in the event that a more specific norm states otherwise, the previous reasoning could be subverted. This reflection stems from the centrality covered within the international legal system by the principle “*lex specialis derogat lex generalis*”, according to which:

*«if a matter is being regulated by a general standard as well as a more specific rule, then the latter should take precedence over the former»*⁴³⁹.

Turning back to the analysis of the use of MASS, it must not be forgotten that, once theoretically admitted the operability of the regime of flag State jurisdiction over the activities performed by remote operators⁴⁴⁰, it should also follow the applicability of the *principle of exclusivity of flag State jurisdiction over navigation on the high seas*. Precisely, according to the in-depth analyzed art. 92,1 of UNCLOS, flag States enjoy *exclusive coercive powers* for what concerns, at least, the navigation of ships flying their flag on the high seas. Then, since the term “ship” is to be intended “as a unit”,

⁴³⁶ ILC, Fragmentation of International Law, cit., para. 103, p. 56: «most of general international law is dispositive and can be derogated from by way of exception».

⁴³⁷ *The Case of the S.S. “Lotus”*, p. 18.

⁴³⁸ CHENG B., *The Extra-Territorial Application of International Law*, cit., p. 140 (emphasis added).

⁴³⁹ ILC, Fragmentation of International Law, cit., para. 56, p. 34-35. In scholarship, see ANZILLOTTI D., *Corso di diritto internazionale*, cit., p. 96; KOSKENNIEMI M., *From Apology to Utopia: The Structure of International Legal Argument*, cit., p. 438-449.

⁴⁴⁰ See section 4(b)(i) of the present chapter. Of course, this possibility is merely consequential to the fact that a MASS has correctly obtained the nationality of a State. In the absence of this jurisdictional link, those MASS would acquire the uncertain and problematic status of “ship without nationality” (in this regard, see section 3(c)(iv)).

even the subjective element of navigation, including remote operators, should be potentially covered by this provision.

Then, from a systemic perspective, one may argue that art. 92,1 of UNCLOS enshrines a more specific international norm rather than the general attribution to exclusive sovereignty to the territorial State. Therefore, the exclusivity of flag State jurisdiction should preclude the latter from enforcing jurisdiction over remote operators within its territory for what concerns navigation performed on the high seas⁴⁴¹.

This last consideration largely problematizes the issue under analysis. With regard to the law of maritime jurisdiction, the avail of the technology of MASS poses itself in a very ambivalent way. From one side, since the use of MASS may be still considered as the performance of the activity of navigation, it should be covered by the existing rules of the Law of the Sea. From the other side, however, its “from shore-controlled nature” imposes to take into account even new and emerging jurisdictional conflicts falling outside the traditional configuration of the jurisdictional balance at sea. In this respect, the jurisdictional issue now observed is quite emblematic. Indeed, it seems that the exercise of enforcement jurisdiction over remote operators for what concerns MASS navigation on the high seas is a question that may bring two very opposite answers; while art. 92,1 of UNCLOS “gives the scepter” to the flag State, general International Law attributes the exclusivity of enforcement jurisdiction to the territorial State.

Among the two possibilities, this author retains that *the principle of the exclusivity of flag State jurisdiction on the high seas does not apply to remote operators*: consequently, the territorial State should enjoy exclusive jurisdictional enforcement powers for what concerns this emerging class of sea-workers.

This position is based on the assumption that the rule enshrined in art. 92,1 of UNCLOS is not to be intended as a *lex specialis* in respect of the law regulating territorial jurisdiction; on the contrary, this norm is part of a set of rules (maritime jurisdiction) that, quite logically, do not apply “on land”.

⁴⁴¹ *The “Enrika Lexie” Incident*, cit., para 527: «[...] the principle of exclusive flag State jurisdiction under the Convention is violated when a State other than the flag State seeks to prescribe laws, rules, or regulations over a ship of the flag State, or applies or enforces such laws, rules, or regulations in respect of such a ship».

By definition, the law of maritime jurisdiction limitedly describes the allocation of States' powers *at sea*⁴⁴². Its functioning is based on the logical assumption that the sea cannot be regulated in the same way as the land. Indeed, while the latter is subject to the paradigm of territorial sovereignty, the same principle does not apply with regard to the marine domain, which is (theoretically) free from any pretense of exclusive sovereignty promoted by States⁴⁴³. Therefore, States have always addressed the regulation of maritime affairs adopting an *alternative* legal approach, which, necessarily, operate outside of the geographical limits of "territorial jurisdiction"⁴⁴⁴.

In this sense, of course, flag State jurisdiction is a special criterion for attributing sovereign powers to States. In fact, it distributes States' jurisdiction following a logic that is not based on territorial grounds. Of course, as noted before, some authors stressed the similarities occurring between it and territorial jurisdiction⁴⁴⁵. However, flag State jurisdiction's role is to regulate the jurisdictional balance for what concerns human activities performed outside the "spatial" extension of territorial sovereignty. In other words, if the attention is limitedly focused on the legal functioning of flag State jurisdiction, this institute is surely special in respect of territorial jurisdiction. However, these two regimes apply into two opposite geographical domains (land and sea): therefore, they are *alternatives*.

This "*alternativity*" between these two paradigms has always been so obvious that, quite comprehensively, there was no particular reason to further clarify it. In fact, before remote control, maritime human activities performed could not be "dislocated" on land.

Anyway, it must not be forgotten that, even before MASS, there were (and still are) cases of conflicts between territorial (port State jurisdiction) and flag State

⁴⁴² We recall the already-provided definitions of the Law of the Sea (see section 3(a) of the first chapter of this research). In particular, we recall to the definition given by Gidel, according to which the Law of the Sea is: «l'ordre juridique qui régit le milieu marin et les diverses utilisations don't il est susceptible» (GIDEL G., *Le droit international public de la mer*, cit., p. 43).

⁴⁴³ ROUCOUNAS E., *Effectiveness of International Law for the Users of the Sea*, cit., p. 917: «As the high seas are *usus communis omnium*, the flag-State has exclusive jurisdiction over all its ships sailing in that zone. As a consequence of the exclusive jurisdiction of the flag State, is that *interference with the navigation by foreign ships is prohibited*».

⁴⁴⁴ OXMAN B., *The Territorial Temptation: a Siren Song at Sea*, cit., p. 830: «[...] the law of the land and the law of the sea developed in very different ways. If the history of the international law of the land can be characterized by the progressive triumph of the territorial temptation, the history of international law of the sea can be characterized by the obverse; namely, the progressive triumph of Grotius's thesis of *mare liberum* and its concomitant prohibition on claims of territorial sovereignty».

⁴⁴⁵ PAPANICOLOPULU I., *International Law and the Protection of People at Sea*, cit., p. 81: «the seas are not subject to the exclusive sovereignty of one State to the exclusion of all others».

jurisdiction⁴⁴⁶. In these circumstances, the configuration of the jurisdictional balance is not reached through the recourse of the general principle “*lex specialis derogat lex generalis*”. Indeed, with limited regard to enforcement jurisdiction, the two regimes are conceived as alternatives, simply considering that flag State jurisdiction works at sea, while port State jurisdiction works from “shore”⁴⁴⁷.

Of course, the rise of MASS surely stimulates new jurisdictional challenges, which inspires the question concerning the applicability “on land” (over remote operators) of the principle of the exclusivity of the jurisdiction of the flag State. However, once remarked the condition of “alternativity” among the two regimes depending of where the jurisdictional targets are placed, it should be concluded that *art. 92,1 of UNCLOS is alternative in respect of the general norm that sets the primacy of the territorial State in enforcing its jurisdiction*. Therefore, one may reasonably conclude that remote operators are under the exclusive jurisdiction of enforcement of the State in whose territory they are physically located; unlike traditional seafarers, remote operators are not covered by the principle of exclusivity of flag State jurisdiction, *even* with regard to the activities performed on the high seas.

ii) The allocation of States’ powers over the object MASS and the human component on board

From an ergonomic perspective, while the object-MASS differs from the traditional object-ship by virtue of its (partial or complete) remote control, at the same time they are united by the fact that they perform transport of goods and people *at sea*; precisely, this common element allows to compare the two existing paradigms for performing navigation, and, in some respects, to treat them in analogy⁴⁴⁸.

From a jurisdictional standpoint, then, the physical presence of autonomous ships *at sea* is the solid ground upon which the rules on maritime jurisdiction find their application. As noted before, the allocation of States’ powers over “ships” strongly depends on where they are located. Accordingly, and independently of the novelties

⁴⁴⁶ See section 4(b) of the present chapter.

⁴⁴⁷ See JESSUP P., *The Law of Territorial Waters and Maritime Jurisdiction*, cit., p. 191.

⁴⁴⁸ See section 4(b)(i) of this chapter.

brought by the remote control into this field, the location of the object-MASS at sea should still play a fundamental role in the configuration of the jurisdictional balance over MASS navigation.

Before starting the specific analysis on the allocation of States' jurisdiction over MASS at sea, it is fundamental to stress one more time that this digression does not limitedly observe the jurisdictional relevance of the mere objective element of navigation; as already pointed out, MASS navigation may be characterized by the contextual existence of both sea-workers on board and remote operators working from shore⁴⁴⁹. Consequently, the location at sea of the object-MASS absorbs the connected location of that part of the human component of navigation physically attending the autonomous ship.

Having said this, it is now intended to understand which States may exercise jurisdiction over this part of the unity configuring the jurisdictional concept of "ship". In this regard, recurring to the same methodological classification adopted in section 4(c)(i), the following digression is based on the separate analysis of the regulation of prescriptive and of enforcement jurisdiction.

For what concerns *prescriptive* jurisdiction (1), it has been already noted that International Law allows the eventual overlapping of many jurisdictional claims invoked by more than one State. Depending on the specific marine zone where MASS are located, port, coastal and flag States may usually exercise their prescriptive powers following what is set by the UNCLOS. As a general principle, then, the more the ship is placed away from the coasts, the more it emerges a concurrency of jurisdiction.

Then, when the ship is navigating on the high seas, the potential list of States that can dispose of prescriptive jurisdiction seems not to be limited to port, coastal and flag States; unless there are specific rules that say the contrary, every State may claim jurisdiction over MASS and people on board navigating on the high seas⁴⁵⁰. Precisely, although recent case law seems to support the position according to which art. 92,1 of UNCLOS precludes States other than the flag one to exercise prescriptive powers on the high seas⁴⁵¹, it has been already concluded that this rule merely deals with the

⁴⁴⁹ Following the classification adopted by IMO in the RSE, these MASS belong to the second level of automation.

⁴⁵⁰ *The Case of the S.S. "Lotus"*, p. 19.

⁴⁵¹ *The "Enrika Lexie" Incident* (Italy v. India), cit., paras. 524-527; *M/V "Norstar"* (Panama v. Italy), cit., para. 225.

jurisdiction of enforcement. As a consequence, port, coastal and flag States may prescribe their law over MASS. Furthermore, it must not be excluded that even States other than the “flag” may take part in this jurisdictional balance.

In this regard, adopting the classic approach enshrined in the *Lotus case*, every State may potentially exercise prescriptive jurisdiction. Otherwise, following the opposite theory, according to which the exercise of State jurisdiction must always be justified by a clear connection (or link) between that conduct and the State⁴⁵², the list of States that can potentially take part to the jurisdictional balance is more limited. Precisely, it is important to understand whether the State where remote operators are located and the State of their nationality may exercise prescriptive jurisdiction over MASS at sea and (eventually) over the people on board of it. In the author’s view, it is arguable that these two classes of States may have certain interests in the effects⁴⁵³ produced by the control activities performed by remote operators. Precisely, since MASS navigation may be seen as the “consequence” of the remote control, it is arguable that there may exist a jurisdictional link connecting these States to the object-MASS (and, eventually to people on board). Therefore, even adopting the second-mentioned approach, it could be anyway argued that these two classes of States may exercise prescriptive powers over MASS at sea.

Shifting now the attention on the allocation of enforcement jurisdiction over MASS (2), in compliance with the existing rules on maritime jurisdiction, this prerogative should be given to one specific State depending on where the MASS is located.

More in detail, where the autonomous ship docks in a port, there is no doubt that it is under the full jurisdiction of the port State. Alternatively, if it is navigating within territorial or archipelagic waters, the coastal or the archipelagic State should have the power to enforce its jurisdiction over the MASS⁴⁵⁴. Then, if the MASS is placed outside

⁴⁵² See the previous section of the present chapter.

⁴⁵³ Traditionally, the effects of a certain behaviour may have some relevance in order to justify the exercise of State jurisdiction over that behaviour. For example, we recall to the “effects doctrine”, defined by the ILC as that theory «which justifies a State’s exercise of jurisdiction when a conduct performed abroad has substantial effects within that State’s territory» (*Extra Territorial Jurisdiction*, Yearbook of the International Law Commission, cit., p. 232, para. 21). The effects doctrine, which finds its origins in the field of commercial and antitrust law, is many times invoked even in criminal law. For an in-depth analysis on this topic, see RYNGAERT C., *Jurisdiction in International Law*, cit., p. 153-156; COPPEL J., *A Hard Look at the Effects Doctrine of Jurisdiction in Public International Law*, *Leiden Journal of International Law*, 1993, p. 73-90; SAMIE N., *The Doctrine of "Effects" and the Extraterritorial Application of Antitrust Laws*, *University of Miami Inter-American Law Review*, 1982, p. 23-59.

⁴⁵⁴ UNCLOS, arts. 21,1, 21,3, 24,1 and 24,2.

the breadth of territorial and archipelagic waters, the flag State should enjoy the primacy in enforcing jurisdiction over it. Clearly, this power is limited and in detail regulated by UNCLOS when the ship is within the contiguous zone⁴⁵⁵, the EEZ⁴⁵⁶ or within the waters superjacent the continental shelf⁴⁵⁷.

Finally, when the MASS navigates on the high seas, art. 92,1 of UNCLOS provides that the flag State, «save in exceptional cases expressly provided for in international treaties or in this Convention»⁴⁵⁸, enjoys exclusive jurisdiction⁴⁵⁹. In few words, all States other than that of the flag State are precluded from enforcing sovereign powers over ships placed in this residual part of the oceans. Accordingly, any other State – *neither the State where remote operators are located* or the State of their nationality – should have the power to enforce its jurisdiction over the object-MASS and the crew on board.

iii) The exercise of enforcement jurisdiction over autonomous navigation: towards the “scission” of the unity of the concept of ship?

In the first pages of section 4, it has been remarked that the conceptualization of “ship” as a unit is the fundamental logical step that makes admissible the theoretical applicability of the rules on maritime jurisdiction to the use of MASS. Indeed, admitting that the concept of “ship” is composed of the objective and subjective elements of navigation *independently of their location*, even MASS could be defined as “ships” for jurisdictional purposes.

Coherently with this, this work has availed of this definition as the starting point for the succeeding analysis concerning the practical implications arising from the (eventual) applicability of the current rules of maritime jurisdiction to MASS navigation.

⁴⁵⁵ UNCLOS, art. 33.

⁴⁵⁶ UNCLOS, art. 58,1 and 2.

⁴⁵⁷ UNCLOS, art. 80.

⁴⁵⁸ UNCLOS, art. 92,1.

⁴⁵⁹ The exceptions provided by UNCLOS to the exclusivity of flag State jurisdiction on the high seas are enshrined in art. 105, dealing with piracy, art. 109,4, concerning unauthorized broadcasting, art. 110, regulating the right of visit, and art. 111, setting the rule of hot pursuit. In particular, this research has already dwelled on the occurrence of flagless ships, excluding the application of the principle of flag State jurisdiction (see section 3(c)(iv) of this chapter). This conclusion appears to be theoretically valid even with regard to flagless MASS.

Precisely, particular attention has been paid to the innovative jurisdictional balance regulating the allocation of States' powers over the use of autonomous ships. In so doing, two distinguished analysis have been carried out, the first dealing with States' jurisdiction over remote operators (1), the second concerning jurisdiction over the object-MASS (2).

Through these studies, a peculiar conclusion has been reached: according to the contemporary configuration of International Law, the exercise of enforcement jurisdiction over the object-MASS and over remote operators is given to two different classes of States. Indeed, *while the object-MASS and the people (eventually) on board are under the jurisdiction of the port, coastal or flag States, remote operators are subject to the exclusive sovereign powers of the State in whose territory they are physically placed.*

In order to further clarify what has been discovered through the present work, it seems useful to take the same case study which was provided at the beginning of section 4(c). Imagine a partially remotely controlled ship flying the flag of the State of *Panama*, owned by a Swedish company and chartered by a Norwegian one. On board of it, there are ten seafarers. This MASS is remotely controlled by a team of six Spanish individuals working from *India*. In the course of navigation, the MASS enters within the EEZ of the State of *Brazil* and, subsequently, docks in an *Argentinian* port.

In compliance to what has been noted in the previous pages, depending on where navigation is concretely performed, UNCLOS grants the faculty to enforce jurisdiction over the object-MASS and its crew on board to port, coastal or flag States (respectively Argentina, Brazil and Panama in the case at stake). However, none of these States has any title to exercise jurisdiction of enforcement over the human component controlling the MASS from a remote location; indeed, according to general International Law, this prerogative belongs to the State in whose territory remote operators are located (India).

From a theoretical perspective, the presented conclusion looks able to attempt to the logical premises building up the international regime on the allocation of States' powers over ships. Manifestly, the conceptualization of the ship "as a unit" is seriously challenged by the factual reality of the "dislocation of navigation", now easily available through the recourse to the technologies of automation of control and digitalization of information. Put differently, the concrete application of the international rules on

maritime jurisdiction to the use of MASS seems to necessarily lead to a sort of *fragmentation of the concept of “ship as a unit”*.

For sake of clarity, it must be specified that this conclusion is valid with limited reference to the regulation of *enforcement jurisdiction*; conversely, as far as prescriptive jurisdiction is concerned, the concept of “ship as a unit” still maintains its validity, even with regard to MASS. Moreover, it must be added that the observed splitting of the unity of the ship is not necessarily based on a sharp distinction between the jurisdictional status of the objective and the subjective elements of MASS navigation. Indeed, as already highlighted, the repartition of State jurisdiction over the object- MASS even governs the human component (eventually) on board of it. Then, in the case of MASS belonging to the third and fourth classes of automation (fully unmanned MASS)⁴⁶⁰, the fragmentation of the unity of the ship is perfectly based on the scission between the objective and subjective elements of navigation.

In any case, what emerges from the presented study is a sort of “normative paradox”. In fact, although the unity of the concept of the ship has been considered as the theoretical premise upon which the applicability of the law of maritime jurisdiction to unmanned navigation finds its justification, the logical truth of this “postulate” seems to be practically betrayed by the succeeding development of this analogical operation.

Therefore, at the state of art, the allocation of States’ sovereign powers over the use of MASS is an open question, whose solution is not easily reachable through a flat recourse to the existing rules on State jurisdiction over traditional ships. Indeed, *the dislocation of the human activity of navigation has the consequence to torn the unity of “ship” between the Law of the Sea and the “Law of the Land”*⁴⁶¹. Precisely, from one side, the Law of the Sea does not grant the faculty to the “strictly-territorial” State to enforce its jurisdiction over the object-MASS placed at sea⁴⁶². From the other side, general International Law does not allow port, coastal or flag States – that can exercise

⁴⁶⁰ See section 3 of the introduction to the research.

⁴⁶¹ With regard to the dualism between the Law of the Land and the Law of the Sea and the inconsistencies rising from it, it is of outstanding interest what declared by ALLOTT P., *Mare Nostrum: A New International Law of the Sea*, American Journal of International Law, 1992, p. 768: «From both the scientific and the economic points of view, it has become much more obvious in recent times that land, sea and air form a single physical and economic system. Land causes produce sea effects. Sea causes produce land effects. Land and sea interact within the single envelope of air. [...] *International law is required to respond with a corresponding natural monism*» (emphasis added).

⁴⁶² See section 4(c)(ii) of the present chapter.

enforcement jurisdiction over the object-MASS – to extend their jurisdiction of enforcement over remote operators⁴⁶³.

⁴⁶³ See section 4(c)(i) of the present chapter.

5. Even more convenience for flags of convenience? Some conclusive thoughts

The second chapter of the present research has addressed the issue concerning the allocation of States' jurisdictional powers over the fast-growing use of autonomous means of maritime transport. The attempt to find an answer to this highly innovative question of International Law has required the prior reconstruction of the contemporary legal framework regulating the activity of traditional navigation. Precisely, the study conducted in sections 2 and 3 has been instrumental to understand whether and how the existing rules on maritime jurisdiction can be applied to the use of MASS (section 4).

After some generic remarks regarding the concept of jurisdiction in International Law and, more precisely, in the of the Law of the Sea, section 3 has dwelled on the international provisions setting up the jurisdictional balance over “ships”, intended by ITLOS as the *unity between the objective and subjective elements of navigation*. In this respect, it has been observed that the allocation of States' powers over the activity of navigation is based on progressive graduation of the regime of flag State jurisdiction depending on the specific marine zone where navigation occurs, even taking into consideration the existing differences occurring between the repartition of prescriptive and of enforcement jurisdiction.

Once concluded the analysis on the law of maritime jurisdiction from a *de iure condito* perspective, this research has addressed the central issue regarding the applicability of the observed legal system to the innovative use of MASS. This analysis has been founded on the *hypothesis* that, since the “target” of the law of maritime jurisdiction is the “ship” – intended as a unit of the objective and subjective elements of navigation *independently of their location* – even the use MASS should be subject to the same set of rules.

However, what has been reached through the succeeding analysis has generated many doubts. Precisely, it has been observed that the use of MASS seems to inexorably lead to the *scission of the concept of “ship as a unit”*. Interestingly, this conclusion potentially undermines the validity of the advanced hypothesis. Indeed, *the application of customary law of maritime jurisdiction to the use of MASS does not generate the same jurisdictional balance regulating the use of traditional ships*. In fact, while the

regulation of “manned” navigation effectively respects the postulate of the “ship as a unit”, the repartition of enforcement jurisdictional powers over MASS appears to be fragmented in two parts: while the object-MASS and the people on board are under the jurisdiction of the port, coastal or flag States, remote operators are subject to the exclusive sovereign powers of the State where they are physically located. Accordingly, in the actual absence of specific rules in this regard, the concept of “ship as a unit” is not capable of well-explaining the applicability of the jurisdictional balance over traditional ships to the use MASS.

In the author’s view, it can be reasonably expected that the ambiguities of the exposed analysis will give rise not only to theoretical concerns, but also to practical ones. Indeed, it is arguable that the difficulties in deciphering the allocation of States’ powers over MASS may contribute to exacerbate even more the already existing pathological aspects brought by the phenomenon of the *flags of convenience*.

In section 3(d), it has been reported the practice of some States of easily conceding their nationality to “foreign” vessels, in order to maximize profits through the reduction of the costs deriving from control operations over ships⁴⁶⁴. Logically, this behaviour is largely detrimental to the global task of ensuring the configuration of a safe and sustainable maritime environment.

Within this scenario, which role will be covered by autonomous ships? Will the growing use of MASS lead to an increase or to a reduction of the spread of flags of convenience? And then, will the pathological aspects of this well-known phenomenon be even more exacerbated by the scission of the unity of the concept of “ship”?

Quite obviously, in the current lack of relevant State practice, a reflection on this matter can only be sketched. Once acknowledged this, however, these last pages aim to advance some hypothetical thoughts in this respect.

In the author’s view, the technology of remote control looks able to further dilute the strength of the *genuine link* occurring between the flag State and the MASS. Indeed, the factual fragmentation of the unity of navigation into many different places and actors makes even more “artificial” the connection between the State granting the nationality and the effective performance of navigation. Allegedly, it is reasonable to predict that this international duty will play even less relevance within the international

⁴⁶⁴ See section 3(d) of the present chapter.

regime of State governance at sea rather than before. In this respect, it is interesting to report the position of Van Hooydonk:

«Returning to the problem of the genuine link it could be that this concept – the credibility of which continues to be doubtful in view of the ineradicable phenomenon of substandard shipping sailing under a number of less-than-strict flags of convenience – is entirely illusory in respect of unmanned shipping. What does the link between the ship and flag state still represent when the owner of the unmanned ship is not necessarily established in that state, when the ship never calls in the ports of that state and when it is controlled and monitored by an anonymous operator sitting at a control desk somewhere in a distant low cost country, or by a computer program created in one or other country and operating ‘in the cloud’? Instead of being genuine the link would then be virtual in the highest degree»⁴⁶⁵.

From a jurisdictional standpoint, therefore, a logical consequence of the scission of the unity of the ship could be the weakening of the genuine link requirement. Indeed, since remote operators are excluded from the exercise of enforcement jurisdiction over “maritime” States, it would be particularly hard even for “non-flags of convenience States” to provide an effective degree of control over ships flying their flag⁴⁶⁶. Moreover, and more importantly, this limitation does not correspond to the power of the territorial State in enforcing its control on every aspect of navigation. In fact, the State where remote operators are placed may limitedly enforce its jurisdiction over them, but not over the object-MASS (and its crew on board). Put differently, the unity of the ship is fragmented and so does even the allocation of State powers over the activity of navigation.

Furthermore, the territorial State, unlike the flag State – to which the Law of the Sea imposes to ensure that their ships effectively comply with international rules on safety of navigation⁴⁶⁷ – is not subject to the same duties; consequently, *its power to enforce jurisdiction over remote operators does not correspond to an international duty to*

⁴⁶⁵ VAN HOOYDONK H., *The Law of Unmanned Merchant Shipping- An Exploration*, cit. p. 410.

⁴⁶⁶ As observed by the International Labour Office: «if the full range of flag State duties in the 1982 Convention are considered, in order to effectively exercise jurisdiction, *the ship, the shipowner and the seafarers must be susceptible to jurisdiction of the national legal system of the flag State*, including the application of penalties» (Emphasis added. See Appendix I to the Report of the Ad Hoc Consultative Meeting of Senior Representatives of International Organizations on the ‘Genuine Link’, UN Doc A/61/160, 17 July 2006. The document is analyzed by SCOVAZZI T., *Human Rights and Immigration at Sea*, cit., p. 227). Clearly, with regard to MASS, flag States are not able to guarantee the operability of their jurisdiction over remote operators.

⁴⁶⁷ See note 340 of the present chapter.

ensure that their conducts do not undermine the safety of the MASS and people on board of it.

Within this scenario, it is not absurd to foresee that “flag of convenience” States could try to fit inside the cracks generated by the scission of the concept of the unity of ships.

Even before MASS, the Law of the Sea has shown its inconsistency in facing the spread of the phenomenon of open registers. Indeed, since the international legal system attributes *exclusive* jurisdictional rights to the flag State concerning the internal aspects of navigation and, contextually, it does not oblige them to ensure the existence of the *genuine link* as a condition for granting their nationality to ships, the natural consequence is that the flags of convenience may easily grow and develop within the marine domain.

Once remembered this, it is reasonable to expect that the use of MASS could lead to enlarge even more the pathological consequences brought by the practice of flags of convenience. As already noted, in fact, the genuine link requirement is even more compromised by the process of the dislocation of navigation. Then, the exclusivity of flag State jurisdiction is not replaced by that of the territorial State, but simply divided into two “parts”. Quite paradoxically, this fragmentation of the jurisdictional status of the ship seems capable of exonerating the flag State from the duty to guarantee a degree of control over the human component of navigation, without this resulting in the *duty* for the territorial State to exercise its sovereign powers over remote operators placed within its territory.

In short, since the scission of the unit of the ship could lead to *halving* the responsibilities of the flag state, the registration of foreign MASS under convenient and opportune conditions would become of *double* convenience: put differently, and quite provocatively, the scission of the unity of the ship could lead to the phenomenon of *flags of convenience squared*.

CHAPTER III

THE INTERNATIONAL RULES ON PROVIDING ASSISTANCE TO PEOPLE IN DISTRESS AT SEA AND THEIR APPLICABILITY TO THE USE OF MASS

SUMMARY: **1.** Introduction to the chapter – **2.** The assistance of people in distress at sea: analysis of the international legal framework – a) Many rules for many “legal subjects” – b) Master’s international duties of assistance – i) On the international legal personality of the master – ii) The legal sources of master’s duties of assistance – iii) The normative content of master’s duties of assistance – c) International duties of the flag State – i) Analysis of flag State’s obligations under the Law of the Sea – I) Art. 98,1 of UNCLOS: a duty upon the flag States, the masters or both? – II) The scope and content of flag States’ duties of assistance provided by UNCLOS – ii) Analysis of flag State’s obligations under Human Rights law: the protection of right to life and the prohibition of degrading treatment – d) International duties of the coastal State – i) Analysis of coastal State’s obligations under the Law of the Sea – ii) Analysis of coastal State’s obligations under Human Rights law – iii) The issue of disembarkation into a “place of safety” – **3.** The use of MASS and their impact on the rules on assistance at sea – a) When there is no place for people on board: MASS and their capability to assist people in distress at sea – b) The applicability of master’s international duties in the context of MASS navigation – i) The issue concerning the absence of the legal subject (master) on board – ii) On the level of assistance to be required to MASS’masters – c) The applicability of flag State’s duties concerning MASS navigation – i) Law of the Sea obligations – ii) Human Rights Law obligations – d) The applicability of coastal State’s duties concerning MASS navigation – i) Law of the Sea obligations – ii) Human Rights Law obligations – iii) MASS and the disembarkation into a POS – **4.** The use of MASS and the need for a new equilibrium between private and public involvement in assisting people in distress at sea: some conclusive reflections.

1. Introduction to the chapter

Navigation is a highly dangerous activity¹. Crossing the sea poses threats attempting the life of seafarers and passengers both². Whether conditions, human mistakes and technical failures are just a few of the many factors which make the performance of maritime human activities particularly hazardous and unsafe³. In few words, the human

¹ PAPANICOLOPULU I., *International Law and the Protection of People at Sea*, cit., p. 15-17.

² URBINA I., *The Outlaw Ocean: Journeys Across the Last Untamed Frontier*, cit.

³ For a general overview in this regard, see GRECH M. R.; HORBERRY T. J.; KOESTER T., *Human Factor in the Maritime Domain*, cit.

activity of navigation is studded with so many risks⁴ that, in a certain sense, they characterize and define it⁵.

For this reason, the duty to assist people in distress at sea has always been a pillar among which the millenary maritime culture is founded⁶. Still today, this moral and ethical obligation is a milestone of navigation.

Notoriously, the international legal system transposes this principle of humanity into law. From the beginning of the twentieth century, several provisions of general⁷ and particular law set the duty to give assistance to people in distress at sea. With the locution “distress”, the present study refers of the definition enshrined in the International Convention on Maritime Search and Rescue (hereinafter SAR Convention)⁸:

«A situation wherein there is a reasonable certainty that a person, a vessel or other craft is threatened by grave and imminent danger and requires immediate assistance»⁹.

In this respect, one could ask how the growing use of autonomous means of maritime transport will impact on the functioning of this set of rules. As noted before¹⁰,

⁴ BOISSON P., *Safety at Sea*, cit., p. 31-38.

⁵ This approach is coherent with the methodology adopted in the first chapter of the present research. On that occasion, it has been remarked that, since navigation is per definition an unsafe activity, international rules on safety of navigation are those norms that govern the ergonomics of navigation. To more in this regard, see section 3(b) of the first chapter.

⁶ In 1832, the French Court of Cassation affirmed that a ship in distress «is placed among civilized nations under the protection of good faith, humanity and generosity». (see *Le Ministère public c. l'équipage et les passagers du Carlo-Alberto*, Cour de Cassation Française, 1832. The translation and comments of this passage is taken by JESSUP P., *The Law of Territorial Waters and Maritime Jurisdiction*, cit., p. 207). Again, in the British case *Scaramanga v. Stamp* of 1880, the national court affirmed that: «To all who have to trust themselves to the sea it is of the utmost importance that the promptings of humanity in this respect should not be checked or interfered with by prudential considerations which may result to a ship or cargo from the rendering of the needed aid» (*Scaramanga v. Stamp*, 5 C.P.D. 295, 304, 1880. The knowledge of this passage is taken by the reading of KENNEY F.; TASIKAS V., *The Tampa Incident: IMO Perspectives and Responses on the Treatment of Persons Rescued at Sea*, Pacific Rim Law and Policy Journal, 2003, p. 148).

⁷ STARITA M., *Il dovere di soccorso in mare e il “diritto di obbedire al diritto” (internazionale) del comandante della nave privata*, cit., p. 18-19; PAPANICOLOPULU I., *The duty to rescue at sea, in peacetime and in war: A general overview*, International Review of the Red Cross, 2016, p. 492; SCOVAZZI T., *Human Rights and Immigration at Sea*, in RUBIO-MARÍN R. (ed.), *Human Rights and Immigration*, Oxford, 2014, p. 225.

⁸ *International Convention on Maritime Search and Rescue*, signed in 1979, entered into force in 1985. To date, 113 States are parties to this Convention, representing the 80.37% of the world's tonnage.

⁹ SAR Convention, art. 1.3.13.

¹⁰ In this specific regard, see COITO J., *Maritime Autonomous Surface Ships. New Possibilities – and Challenges – in Ocean Law and Policy*, cit., p. 272; *Unmanned Vehicles Could Aid Search and Rescue*, The Maritime Executive, 16 December 2016.

one of the main benefits coming from the use of MASS is the general improvement in terms of maritime safety¹¹: broadly speaking, fewer persons are physically involved in navigation, fewer risks there are for their life. At the same time, however, fewer persons are crossing the oceans, fewer chances there are for people in distress to receive assistance. For this reason – analogously to what previously noted about the rules on safety of navigation¹² and on State jurisdiction over ships¹³ – the use of MASS challenges the scope and the content of the existing norms on providing assistance to people in distress at sea. The technologies of automation and control imposes an in- depth analysis concerning the MASS capabilities to concretely perform assistance operations: as it will be further observed below, MASS (in particular those belonging to the third and the fourth classes of automation¹⁴) are usually not conceived to host people on board¹⁵. Therefore, it is questionable whether and to what extends their use complies with International Law.

In the last few years, the proposed issue has gained increasing attention: States¹⁶, international organizations¹⁷ and scholars¹⁸ have all started addressing this topic.

¹¹ BERG N.; STORGARD J.; LAPPALAINEN J., *The Impact of Ship Crews on Maritime Safety*, cit.; The Autonomous Revolution, at <https://maritime-executive.com/features/the-autonomousrevolution>, 20 September 2019

¹² See the first chapter of the present research.

¹³ See the second chapter of the present research.

¹⁴ See section 3 of the introduction to the research.

¹⁵ COITO J., *Maritime Autonomous Surface Ships. New Possibilities – and Challenges – in Ocean Law and Policy*, cit., p. 274.

¹⁶ In this regard, we refer to the survey for States about MASS organized by the CMI, available at <https://comitemaritime.org/work/mass/>. In addition, see also the national legislation advanced by the United Kingdom concerning the use of MASS: Maritime UK, *Maritime Autonomous Surface Ships UK Code of Practice*, 2019.

¹⁷ In this regard, see IMO, *Regulatory Scoping Exercise for the Use of Maritime Autonomous Surface Ships (MASS)*, Work conducted by the CMI International Working Group on Unmanned ships Submitted by CMI, MSC 99/INF. 8, 13 February 2018; *Regulatory Scoping Exercise for the Use of Maritime Autonomous Surface Ships (MASS)*, Studies conducted in Japan on mandatory regulations relating to Maritime Autonomous Surface Ships – SOLAS, STCW and COLREGs, Submitted by Japan, MSC 99/INF. 14, 13 March 2018.

¹⁸ Among others, see COITO J., *Maritime Autonomous Surface Ships. New Possibilities – and Challenges – in Ocean Law and Policy*, cit.; MANDRIOLI D., *The International Duty to Assist People in Distress at Sea in the Era of Unmanned Navigation: No Place for People On Board*, cit.; BAUGHEN S., *Who is the master now?*, cit.; DEAN P.; CLACK H., *Autonomous Shipping and Maritime Law*, cit., p. 74; CMI, *CMI International Working Group Position Paper on Unmanned Ships and the International Regulatory Framework*, cit., p. 6 and 11; LI RUI, *On the Legal Status of Unmanned Ships*, cit., p. 178- 182; SPARROW R.; MCLAUGHLIN R.; HOWARD M., *Naval Robots and Rescue*, *International Review of the Red Cross*, 2017, p. 1139-1159; PRITCHETT, P. W., *Ghost ships: Why the law should embrace unmanned vessel technology*, cit., p. 208-210.

In the actual lack of relevant practice, the third chapter of the present research will analyze whether and how the existing legal framework on rendering assistance at sea adapt to the use of autonomous means of maritime transport.

Methodologically wise, the analysis of the outlined topic is structured in four principal sections.

The next one (2) will provide a general overview of the international legal framework regulating assistance at sea from a *de iure condito* perspective. In this respect, it must be anticipated that, although it is quite common to read and hear that International Law sets *one* duty to assist people in distress at sea¹⁹, the existing legal scenario looks much more complex and variegated. For what concerns the protection of the human life in danger at sea, indeed, International Law sets a *plurality of rules*²⁰; these provisions strongly differ one from each other depending on their normative source, their recipients, their content and their international regime of belonging²¹. Once acknowledged this, section 2 of this chapter will firstly analyze the *master's* duties on rendering assistance at sea; then, it will deal with the international rules setting *flag State's* obligations in this regard; conclusively, it will describe the role played by the *coastal States* in the performance of Search and Rescue (SAR) operations²².

Once reconstructed the international legal framework object of analysis, the third section (3) will be dedicated to understanding whether and how the use of MASS complies with the international duties on providing assistance at sea. As anticipated, from a factual perspective, MASS may be quite limited in performing assistance operations: these new means of maritime transport may be not designed for rescuing persons in distress at sea. Moreover, autonomous ships of third and fourth levels of automation differ from traditional ones for the physical absence of the “master” on

¹⁹ For example, this approach is adopted by SCOVAZZI T., *Human Rights and Immigration at Sea*, cit., p. 225: «The duty to render assistance to persons in danger at sea is provided for in several treaties applicable to various activities taking place at sea».

²⁰ DE VITTOR F.; STARITA M., *Distributing Responsibilities between Shipmasters and the Different States Involved in SAR Disasters*, cit., p. 77: «the rather general concept of “duty to save life at sea” hides a complex web of intertwined international rules, regulations and standards, scattered across several treaties, providing obligations for both shipmasters and States».

²¹ For what concerns the term “international regime”, we refer to the outstanding works of the ILC on fragmentation of International Law, redacted by Special Rapporteur Koskenniemi. See note 75 of the first chapter of the present research.

²² The classification of international duties on assistance at sea in three categories (depending on the recipients provided by the law) has been advanced by PAPANICOLOPULU I., *Le operazioni di search and rescue: problemi e lacune del diritto internazionale*, *Rivista trimestrale di diritto pubblico*, 2019, p. 509-510.

board; this last characteristic appears to be highly problematic when dealing with this legal framework, which attributes a key role to the figure of the master²³.

Accordingly, this section will observe the eventual inconsistencies emerging from the use of MASS and the fulfilment of the master's, flag State's and coastal State's duties in providing assistance to people in distress at sea. In so doing, particular attention will be given to the technical features characterizing the four levels of automation of MASS technology²⁴; manifestly, different degrees of automation correspond to different delimitations in assisting people in distress at sea, which, in turn, give rise to different legal challenges²⁵.

Conclusively, the last section (4) will report the main conclusions emerging from the analysis carried out in the whole chapter III, in order to provide some food for thought on the next steps the international community should take for strengthening the protection of human lives in distress at sea in the forthcoming era of autonomous navigation.

²³ MUNARI F., *Migrazioni, SAR, ruolo e responsabilità delle ONG*, cit., p. 331-332.

²⁴ See section 3 of the introduction to the research.

²⁵ COITO J., *Maritime Autonomous Surface Ships. New Possibilities – and Challenges – in Ocean Law and Policy*, cit., p. 266-270.

2. The assistance of people in distress at sea: analysis of the international legal framework

a) Many rules for many “legal subjects”

The duty to assist persons in distress at sea has a millennial history²⁶: in prof. Severance's words, this moral and ethical obligation is «as old as seafaring itself»²⁷. Since the beginning of the twentieth century, States have felt the need to adopt treaty rules in this specific regard²⁸. From that moment on, this matter has been the object of legal and political debates. In particular, due to the dramatic increase of mixed maritimemigration flows occurring from the end of the twentieth century to the contemporary age²⁹, the regulation of this topic has been in constant evolution, following the practice

²⁶ For an in-depth analysis on the historical evolution of this normative field, see ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 18-28.

²⁷ SEVERANCE A., *The Duty to Render Assistance in the Satellite Age*, California Western International Law Journal, 2006, p. 377.

²⁸ In 1897, the CMI organized an international conference in this regard. After a decade, the diplomatic conference brought to the conclusion of the *International Convention for the Unification of Certain Rules of Law relating to Assistance and Salvage at Sea* (Salvage Convention), UKTS 4 (1913), Cd. 6677, 23 September 1910 (entered into force 1 March 2013) and the *International Convention for the Unification of Certain Rules of Law related to Collision between Vessels* (Collisions Convention) [1930] ATS 14, 23 September 2010 (entered into force 1 March 1913); SOLAS Convention.

²⁹ IUSSICH L.; MAGLIĆ L., *Search and rescue operations of immigrants at sea: Challenges for the crew of merchant ships*, Croatian Association of Maritime Science and Transport, 2018, p. 45-51; BUTTON R., *International Law and Search and Rescue*, Naval War College Review, 2017, p. 38-39.

and the initiatives of States in dealing with the phenomenon of migration³⁰, which contextually addresses several fields of International Law³¹.

As a result of this legal “ferment”, the international normative framework on assistance at sea looks extremely variegated. Precisely, International Law addresses this topic through a composite regulation, contextually involving several legal and physical actors. Thus, it is quite simplistic to affirm that International Law sets just one duty to provide assistance at sea³²: on the contrary, the legal protection of human life in the marine domain is composed of *different* norms, posing *different* duties over *different* subjects³³. Broadly speaking, what is unique is the goal to save human life at sea; what is not unique is the positive regulation currently in force, consisting of several international provisions.

³⁰ In the last decade, due to the occurrence of many maritime emergencies involving thousands of migrants, refugees and asylum seekers, authoritative scholars have addressed the limits and the inconsistencies of the above-mentioned international rules. Among many others, see DE VITTOR F., *Il Port State Control sulle navi delle ONG che prestano soccorso in mare: tutela della sicurezza della navigazione o ostacolo alle attività di soccorso?*, *Diritti Umani e Diritto Internazionale*, 2021, p. 103-128; PELLICO A.M., *Migrants at Sea and the implications of the duty to rescue human rights perspectives in the light of the Italians case law*, *Il Diritto Marittimo*, 2020, p. 621-638; TANAKA Y., *The International Law of the Sea*, cit., p. 210-216; MORENO LAX V.; PAPASTAVIDRIS E. (eds.), *'Boat Refugees' and Migrants at Sea: A Comprehensive Approach*, Leiden, 2017; TREVISANUT S., *Recognizing the Right to be Rescued at Sea*, in CHIRCOP A.; COFFEN-SMOUT S.; MCCONNELL M.L. (eds.), *Ocean Yearbook*, Volume 31, Leiden, 2017, p. 139-154; RATCHOVIC M., *The Concept of 'Place of Safety': Yet Another Self-Contained Maritime Rule or a Sustainable Solution to the Ever-Controversial Question of Where to Disembark Migrants Rescued at Sea?* *Australian Yearbook of International Law*, 2015, p. 81-129; LANSAKARA F., *Rescue of Migrants at Sea under Maritime Law Regime*, *ISIL Year Book of International Humanitarian and Refugee Law*, 14, 2014-2015, p. 288-295; CALIGIURI A., *Le operazioni di contrasto dell'immigrazione clandestina alle frontiere marittime dell'Unione europea e la tutela dei richiedenti asilo*, in CALIGIURI A.; CATALDI G.; NAPOLETANO N. (eds.), *La tutela dei diritti umani in Europa. Tra sovranità statale e ordinamenti sovranazionali*, Padova, 2010, p. 359-385.

³¹ In this regard, see MUNARI F., *Migrazioni, SAR, ruolo e responsabilità delle ONG*, cit., p. 340-341: «La complicazione del quadro normativo è largamente dovuta alla già accennata circostanza secondocui, alla disciplina giuridica applicabile alla fattispecie in esame, si sono aggiunte non soltanto le regole di diritto umanitario e quelle relative alla tutela dei diritti fondamentali, ma anche altre: innanzitutto, la materia dell'immigrazione tocca evidentemente profili relativi al controllo delle frontiere e alle norme ad esse relative. Inoltre, atteso che nel movimento dei migranti sono largamente coinvolte organizzazioni criminali, che in realtà gestiscono quello che viene convenzionalmente definito *human trafficking*, vengono in rilievo profili non solo di diritto internazionale pattizio, ma anche di diritto penale, cui si aggiungono, addirittura, questioni di sicurezza nazionale, scaturenti dalla possibilità che terroristi diretti verso l'Europa possano entrare all'interno del suo territorio mescolandosi tra i migranti». On the same view, see TREVES T., *Law of the Sea*, cit., para. 130. For a general overview in this regard, see MANN I., *Humanity at Sea*, Cambridge, 2016.

³² See note 19 of the present chapter.

³³ ZAMUNER E., *Search and Rescue of Migrants in the Mediterranean Sea between Public Responsibility and Private Engagement: an International and EU Law Perspective*, cit., p. 977.

Methodologically wise, the present section classifies and analyzes the rules on assistance at sea according to their *recipients*³⁴: in the author's view, the proposed classification will facilitate and systematize the following analysis on the normative content of international norms under attention.

Coherently with this, section 2(b) will deal with the international duties of the *shipmaster* in assisting persons in distress at sea. Then, section 2(c) will report and describe the *flag State*'s obligations in this respect. In the final instance, section 2(d) will analyze the search and rescue (SAR) operations to be performed by *coastal States* in compliance with what is provided by the existing international rules.

b) Master's international duties of assistance

i) On the international legal personality of the master

The present section analyzes the shipmaster's international duties to provide assistance to persons in distress at sea. This methodological approach is based on the assumption that the master, *i.e.* the physical person in charge of the activity of navigation³⁵, is an *international legal subject*; more generally, the adopted structure is founded on the hypothesis that physical persons may have the capacity:

«to have an individual right or duty and not merely be at the mercy of objective international law»³⁶.

Accordingly, these introductory pages are aimed to provide a brief panoramic about the international legal subjectivity of the individual and, in particular, of the shipmaster, in order to explain why the latter is here qualified as an international legal person.

Since the establishment of the Westphalian order, it is said that International Law regulates legal relationships between States³⁷. Unlike the domestic legal systems –

³⁴ The chosen methodology of work has been already used by DE VITTOR F.; STARITA M., *Distributing Responsibilities between Shipmasters and the Different States Involved in SAR Disasters*, cit.

³⁵ For what concerns the definition of the master in International Law of the Sea, see section 3(d)(i) of the first chapter of the present research.

³⁶ PETERS A., *Beyond Human Rights: the Legal Status of the Individual in International Law*, Cambridge, 2016, p. 36.

where the power to produce the law is given to an institution that covers a position of supremacy in respect of the consociates³⁷ – in International Law, States are both the creators and the recipients of the international legal relationships³⁹: in this sense, States are the *primary* subjects of International Law⁴⁰.

The position of primacy of States does not exclude that even other “entities” may enjoy a certain capacity to be holders of international rights and duties⁴¹. In the current age, indeed, it is pacific that the list of the legal persons further comprehends *secondary* subjects of International Law⁴². Quite logically, their legal personality is limited when compared to that of States: precisely, they do not have an analogous power to create the law⁴³. In any case, it is widely accepted that they can be the direct recipients of specific international rules: therefore, these “entities” are to be properly considered as international legal subjects⁴⁴.

³⁷ The sovereignty-centered nature of International Law is the essential characteristic of the international community in the post-Westphalian order. In this regard, we recall what was declared by the PCA in the renowned *Islands of Palmas Case* arbitration, cit. In scholarship, see ANZILLOTTI D., *Corso di diritto internazionale*, cit., p. 37-49. For a recent reflection on the evolution of the concept of sovereignty in International Law, see CANNIZZARO E., *La sovranità oltre lo Stato*, cit.

³⁸ TANZIA A., *Introduzione al diritto internazionale contemporaneo*, Padova, 2010, p. 30-32.

³⁹ ANZILLOTTI D., *Corso di diritto internazionale*, cit., p. 91. According to some theories, this prerogative qualifies the State as the only international legal subject, and so excluding the possibility to infer that even other entities can be qualified as such. Precisely, this approach is based on the idea that, to be considered an international legal subject, an entity must enjoy certain capacities, such as the legal capability to be held liable and to conclude treaties. The reported position is supported by TOMUSCHAT C., *Ensuring the Survival of Mankind on the Eve of a New Century General Course on Public International Law*, 281 Recueil des Cours, 1999.

⁴⁰ The conceptualization of States as *primary subjects* of International Law is adopted by authoritative scholars. Among many others, see CASSESE A., *Diritto internazionale*, cit., p. 15; CARTY A., *Philosophy of International Law*, Edinburgh, 2007, p. 81. For an authoritative analysis on the subjectivity of States, see ARANGIO-RUIZ G., *Gli enti soggetti dell'ordinamento internazionale*, Milano, 1951 (in particular, see p. 98-109).

⁴¹ In dealing with the question concerning the legal personality of the United Nations, the ICJ affirmed that: «The subjects of law in any legal system are not necessarily identical in their nature or in the extent of their rights, and their nature depends upon the needs of the community. Throughout its history, the development of international law has been influenced by the requirements of international life, and the progressive increase in the collective activities of States has already given rise to instances of action upon the international plane by certain entities which are not States» (*Reparation for injuries suffered in the service of the United Nations*, Advisory Opinion, ICJ Reports, 1949, p. 9. Emphasis added).

⁴² Ibid.

⁴³ CANNIZZARO E., *Diritto internazionale*, Torino, 2018, p. 274.

⁴⁴ *Reparation for injuries suffered in the service of the United Nations*, cit., p. 9: «the Organization is an international person. That is not the same thing as saying that it is a State, which it certainly is not, or that its legal personality and rights and duties are the same as those of a State. [...] What it does mean is that it is a subject of international law capable of possessing international rights and duties, and that it has capacity to maintain its rights by bringing international claims» (*Reparation for injuries suffered in the service of the United Nations*, Advisory Opinion, ICJ Reports, 1949, p. 9).

Within the group of the secondary subjects of International Law, the issue concerning the legal personality of individuals has always been largely debated. In the early twentieth century, physical persons were not usually conceived as international legal subjects, but rather as mere “objects”/beneficiaries of States’ legal relationships⁴⁵. In this regard, it is of emblematic relevance what was declared in 1928 by the PCIJ in the advisory opinion on the *Jurisdiction of the Courts of Danzig*:

«according to a well established principle of international law, the *Beamtenabkommen*, being an international agreement, cannot, as such, create direct rights and obligations for private individuals. But it cannot be disputed that the very object of an international agreement, according to the intention of the contracting Parties, may be the adoption by the Parties of some definite rules creating individual rights and obligations and enforceable by the national courts»⁴⁶.

According to this view, individuals are not *per se* the direct recipients of international legal relationships: even if international norms deal with individuals’ rights and duties, States, not the physical persons, are the holders of these rules⁴⁷. Therefore, the legal personality of individuals is denied or, at least, significantly downsized⁴⁸.

Contrarily to the mentioned approach, a more recent legal theory affirms the legal capacity of the individual to hold international rights and duties. Broadly speaking, this hypothesis is based on the assumption that the States, being the “lords” of international law⁴⁹, have the faculty to grant rights and prescribe duties even upon other “entities”. For example, it is pacific that States may give birth and concede a certain legal

⁴⁵ ANZILLOTTI D., *Corso di diritto internazionale*, cit., p. 121: «le norme che apparentemente accordano diritti agli individui, in realtà obbligano o autorizzano lo Stato ad accordare quei dati diritti». This topic has been in-depth analyzed by ARANGIO-RUIZ G., *Gli enti soggetti dell’ordinamento internazionale*, cit., p. 253-290.

⁴⁶ *Jurisdiction of the Courts of Danzig*, Advisory Opinion, P.C.I.J. Reports, 1928, p. 17-18.

⁴⁷ With regard to the so-called “direct effect” of international norms over individuals, see BARATTA R., *L’effetto diretto delle disposizioni internazionali self-executing*, cit.

⁴⁸ Of course, it is impossible to reach categorical conclusions about the subjectivity of individuals. As summarized by PETERS A., *Beyond Human Rights*, cit., p. 42: «Customarily, the individual is referred to as derivative, artificial, agreed, selected, partial, limited, passive, potential, or sui generis subject of international law». Of the same advice, see STARITA M., *Il dovere di soccorso in mare e il “diritto di obbedire al diritto” (internazionale) del comandante della nave privata*, cit., p. 29.

⁴⁹ ROCHA L.S., *Private Actors as Rights Holders under the International Law of the Sea*, PhD Thesis, 2018, p. 76.

personality to international organizations⁵⁰; for the very same reason, States have the power to *attribute international rights and duties directly over individuals*⁵¹.

Notoriously, the ICJ endorsed this position in the *LaGrand* case, where it was called to adjudge and declare whether art. 36,1(b) of the Vienna Convention on Consular Relations⁵² prescribes an international *individual* right. In this regard, the Court stated that:

«[...] Article 36, paragraph 1, *creates individual rights*, which, by virtue of Article 1 of the Optional Protocol, may be invoked in this Court by the national State of the detained person»⁵³.

In the author's view, the theoretical validity of this last reported approach is confirmed by the analysis of many other international rules currently in force. For example, looking at the international regime of Human Rights Law, individuals are the *direct holders* of certain international rights⁵⁴. In particular, the configuration of regional courts of settlement of disputes – such as the ECoHR and the Inter-American Court of Human Rights (hereinafter IACHR) – allow individuals to *directly* invoke the alleged violations committed by States⁵⁵. Moreover, even the field of international criminal law conceives physical persons as the direct recipients of its norms, and it

⁵⁰ In this regard, see *Reparation for injuries suffered in the service of the United Nations*, cit., p. 9.

⁵¹ FOCARELLI C., *La persona umana nel diritto internazionale*, Bologna, 2013, p. 17: «Sono proprio gli stati che per garantire il rispetto di delle norme comuni predispongono diritti e obblighi individuali, sia materiali che procedurali, ritenuti più idonei ad assicurare che gli stati le rispettino». On the same advice, see MAGI L., *L'obbligo internazionale del comandante di soccorrere i naufraghi e il diritto ad un porto di rifugio*, cit., p. 712.

⁵² Vienna Convention on Consular Relations, signed in 1963, entered into force in 1967. Currently, 180 States are parties to the treaty.

⁵³ *LaGrand* (Germany v. United States of America), Judgement, I.C.J. Reports, 2001, para. 77 (emphasis added). Three years later, this approach has been confirmed in the case concerning *Avena and Other Mexican Nationals* (Mexico v. United States of America), Judgment, I.C.J. Reports, 2004. In scholarship, see SCHEININ, M., *The ICJ and the Individual*, International Community Law Review 2007, p. 123-138.

⁵⁴ In a comment of the Universal Declaration on Human Rights, the renowned Italian philosopher Norberto Bobbio affirmed that: «I diritti dell'uomo, che erano stati e hanno continuato a essere affermati nelle costituzioni dei singoli stati, oggi sono stati riconosciuti e solennemente proclamati nell'ambito della comunità internazionale, con una conseguenza, che ha letteralmente sconvolto la dottrina e la prassi del diritto internazionale: ogni individuo è stato elevato a soggetto potenziale della comunità internazionale, i cui soggetti erano stati sinora considerati eminentemente gli stati sovrani» (The text is reported in SPADOLINI G.; BOBBIO N., *Tutti i diritti universali dell'uomo e dei popoli*, Milano, 1993, p. 41, emphasis added). Among many others, this topic is in-depth analyzed by CANNIZZARO E., *Diritto internazionale*, cit., p. 335-339; FOCARELLI C., *La persona umana nel diritto internazionale*, cit.; TOMUSCHAT C., *Human Rights: Between Idealism and Realism*, Oxford, 2008; CASSESE A., *I diritti umani nel mondo contemporaneo*, Bari, 1988.

⁵⁵ CANNIZZARO E., *Diritto internazionale*, cit., p. 340-344.

configures a regime of international criminal responsibility for unlawful acts committed by them⁵⁶. These two examples show that on many occasions States are used to grant international rights and duties directly to individuals⁵⁷.

For what concerns the regime of the Law of the Sea, «one of the oldest and most developed fields of international law»⁵⁸, it is common to read and hear that its rules follow a clear State-centeredness nature. Precisely, since this regime principally regulates national interests concerning maritime matters⁵⁹, it is said that the Law of the Sea sets legal relationships between the “classic” subjects of International Law, not upon individuals⁶⁰: even if its norms deal with the performance of human activities at sea, the adopted normative technique is to conceive them through the lens of States’ rights and duties⁶¹.

In contrast with this categorical position, a more recent view admits that some Law of the Sea rules configure individual rights and duties over physical persons. In this regard, Judge Wolfrum, through a separate opinion to the *Saiga* decision, proposed an avant-garde interpretation of UNCLOS rules on freedom of navigation. In Wolfrum’s thought, arts. 58⁶² and 87⁶³ of UNCLOS set legal relationships both on States and on the

⁵⁶ In this regard, see LEANZA U., *L’individuo e I diritti umani nell’ordinamento internazionale e in quello europeo*, La Comunità Internazionale, 2019, p. 310. More in general, see LVAN SLIEDREGT E., *Individual Criminal Responsibility in International Law*, Oxford, 2012.

⁵⁷ FOCARELLI C., *La persona umana nel diritto internazionale*, cit., p. 17: «[...] le norme sui diritti umani e sui crimini internazionali [...] fanno parlare oggi di una “soggettività internazionale”».

⁵⁸ PAPANICOLOPULU I., *International Law and the Protection of People at Sea*, cit., p. 84.

⁵⁹ See section 3(a) of the first chapter of this research.

⁶⁰ Among many others, this approach is acknowledged by TREVES T., *Navigation*, cit.

⁶¹ PAPANICOLOPULU I., *The Law of the Sea Convention: No Place for Persons?*, cit, p. 872: «The entire LOSC attributes rights and duties to States, not to individuals. While rights of persons may implicitly follow from the rights and duties of States, they are often uncertain, depending as they do on the implementation of generic obligations by States».

⁶² UNCLOS, art. 58: «1. In the exclusive economic zone, all States, whether coastal or land-locked, enjoy, subject to the relevant provisions of this Convention, the freedoms referred to in article 87 of navigation and overflight and of the laying of submarine cables and pipelines, and other internationally lawful uses of the sea related to these freedoms, such as those associated with the operation of ships, aircraft and submarine cables and pipelines, and compatible with the other provisions of this Convention.

2. Articles 88 to 115 and other pertinent rules of international law apply to the exclusive economic zone in so far as they are not incompatible with this Part.

3. In exercising their rights and performing their duties under this Convention in the exclusive economic zone, States shall have due regard to the rights and duties of the coastal State and shall comply with the laws and regulations adopted by the coastal State in accordance with the provisions of this Convention and other rules of international law in so far as they are not incompatible with this Part».

⁶³ UNCLOS, art. 87: «1. The high seas are open to all States, whether coastal or land-locked. Freedom of the high seas is exercised under the conditions laid down by this Convention and by other rules of International law. It comprises, *inter alia*, both for coastal and land-locked States: (a) freedom of navigation; (b) freedom of overflight; (c) freedom to lay submarine cables and pipelines, subject to (d) freedom to construct artificial islands and other installations permitted under international law, subject to

physical actors of navigation, so that even individuals enjoy international rights *directly* provided by the UNCLOS. Precisely:

«The provisions of the Convention indicate that concerning freedom of navigation the rights of States and those of individuals are interwoven»⁶⁴.

Years later, this interpretation has been explicitly acknowledged by the ITLOS in the *Virginia* judgement. On that occasion, the international Tribunal admitted that, while:

«most provisions of the Convention referred to in the final submissions of Panama confer rights mainly on States [...] in some of the provisions referred to by Panama, however, rights appear to be conferred on a ship or persons involved»⁶⁵.

Therefore, although it is quite pacific that the majority of Law of the Sea rules mainly regulates States' legal relationships⁶⁶, it cannot be *a priori* excluded that some of its norms grant international rights and duties *directly upon individuals*.

With specific regard to the international regulation of assistance at sea, then, the large majority of scholars believe that the Law of the Sea attributes a certain legal personality to the figure of the shipmaster⁶⁷. According to the now conducted analysis, this approach complies with the contemporary features of the international legal system.

Furthermore, this normative solution is also explained by some practical concerns; notoriously, many situations of distress occur on the high seas, far away from the coasts

Part VI; (e) freedom of fishing, subject to the conditions laid down in section 2; (f) freedom of scientific research, subject to Parts VI and XIII.

2. These freedoms shall be exercised by all States with due regard for the interests of other States in their exercise of the freedom of the high seas, and also with due regard for the rights under this Convention with respect to activities in the Area».

⁶⁴ *M/V "Saiga"* cit., Separate opinion of Vice-President Wolfrum, para. 53.

⁶⁵ *M/V "Virginia"*, cit., para. 156.

⁶⁶ In the present research, for example, it has been affirmed that the recipients of the international rules regulating the ergonomics of navigation are States, not individuals (see section 3(a) of the first chapter of the present research).

⁶⁷ Among others, see ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit.; MAGI L., *L'obbligo internazionale del comandante di soccorrere i naufraghi*, cit.; PAPANICOLOPULU I., *Le operazioni di search and rescue: problemi e lacune del diritto internazionale*, cit.; STARITA M., *Il dovere di soccorso in mare e il "diritto di obbedire al diritto" (internazionale) del comandante della nave privata*, cit.; DE VITTOR F.; STARITA M., *Distributing Responsibilities between Shipmasters and the Different States Involved in SAR Disasters*, cit.

of the States. Therefore, the shipmasters navigating in proximity to the place where the emergencies occur are:

«[...] in a better position to provide a rapid and effective response than SAR State vessels, which may take longer to arrive at sites of distress»⁶⁸.

For all these reasons, it may be reasonably concluded that the current configuration of the Law of the Sea avails of the legal subjectivity of the master to ensure appropriate protection of the persons found in distress at sea.

ii) The legal sources of master's duties of assistance

Once qualified the shipmasters as the direct recipients of international rights and duties, it is now intended to list their duties to provide assistance to people in distress at sea.

Starting with the analysis of conventional law, from the beginning of the twentieth century, States have started regulating the direct involvement of the masters of their national ships in the procedures of assistance to offer to people in distress at sea. In this regard, art. 11,1 of the 1910 Salvage Convention⁶⁹ establishes that:

«Every master is bound, so far as he can do so without serious danger to his vessel, her crew and her passengers, to render assistance to everybody, even though an enemy, found at sea in danger of being lost».

Then, art. 8 of the 1910 Collisions Convention⁷⁰ affirms that:

«After a collision, the master of each of the vessels in collision is bound, so far as he can do so without serious danger to his vessel, her crew and her passengers, to render assistance to the other vessel, her crew and her passengers.

⁶⁸ ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 6. For a more extended analysis in this regard, see NERI K., *The Challenges Faced by Private Ships in Large-scale Rescue Operations at Sea*, in BEVILACQUA G. (ed.), *Sicurezza umana negli spazi navigabili: sfide comuni e nuove tendenze*, Napoli, 2021, p. 95-108.

⁶⁹ See note 28 of the present chapter.

⁷⁰ Ibid.

He is likewise bound so far as possible to make known to the other vessel the name of his vessel and the port to which she belongs, and also the names of the ports from which she comes and to which she is bound.

A breach of the above provisions does not of itself impose any liability on the owner of a vessel».

A few years later, in response to the Titanic disaster, the first version of the SOLAS was adopted⁷¹. On that occasion, State delegates decided to remark the centrality of the duty of assistance at sea within the international legal framework. In so doing, they opted to act in full harmony with the already mentioned treaties, to avoid as much as possible the risk of a normative conflict⁷². Coherently with this goal, the content of the 1914 version of the SOLAS does not depart from the texts of art. 11,1 of the Salvage Convention and art. 8 of the Collisions Convention. Precisely, art. 37,1 of Chapter V of the SOLAS states that:

«[e]very master of a ship, who receives a call for assistance from a vessel in distress is bound to proceed to the assistance of the persons in distress».

In the contemporary age, the international regulation on providing assistance did not lose its relevance⁷³. Precisely, the goal of saving human life at sea has inspired the drafting of specific rules provided in new IMO treaties. In particular, the 1974 version of the SOLAS prescribes that:

«The master of a ship at sea which is in a position to be able to provide assistance on receiving information from any source that persons are in distress at sea, is bound to proceed with all speed to their assistance, if possible informing them or the search and

⁷¹ See section 3(d) of the first chapter of the present research.

⁷² ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 25.

⁷³ In this regard, it must be highlighted that the contemporary regulation of assistance at sea turns around the content of art. 98,1 of UNCLOS. However, this rule is not here analyzed. The decision to postpone its study in the following section 2(c)(i)(I) is due to the conviction that art. 98,1 of UNCLOS sets international duties *over flag States, and not directly over individuals*. In any case, the author is conscious of the fact that some international lawyers sustain that UNCLOS (but also the High Sea Convention and the SAR Convention) poses duties of assistance over masters and States both, and not merely over the latter. To more about this alternative view, see the IMO *Guidelines on the Treatment of Persons Rescued at Sea*, cit., Appendix. In scholarship, among others, see STARITA M., *Il dovere di soccorso in mare e il "diritto di obbedire al diritto" (internazionale) del comandante della nave privata*, cit.,; PAPANICOLOPULU I., *The duty to rescue at sea, in peacetime and in war: A general overview*, cit., p. 495; KENNEY F.; TASIKAS V., *The Tampa Incident: IMO Perspectives and Responses on the Treatment of Persons Rescued at Sea*, cit., p. 150. As anticipated, then, this topic will be in-detailed analyzed in section 2(c)(i)(I) of this chapter.

rescue service that the ship is doing so. This obligation to provide assistance applies regardless of the nationality or status of such persons or the circumstances in which they are found. If the ship receiving the distress alert is unable or, in the special circumstances of the case, considers it unreasonable or unnecessary to proceed to their assistance, the master must enter in the log-book the reason for failing to proceed to the assistance of the persons in distress, taking into account the recommendation of the Organization, to inform the appropriate search and rescue service accordingly»⁷⁴.

Moreover, the 1989 version of the International Convention on Salvage⁷⁵ states that:

«Every master is bound, so far as he can do so without serious danger to his vessel and persons thereon, to render assistance to any person in danger of being lost at sea»⁷⁶.

Above and beyond conventional law, even general international law prescribes the masters to assist people found in distress at sea. As noted before, this behaviour has always been perceived as a milestone in the maritime culture⁷⁷. Of course, this fact does not confirm *per se* the existence of a customary norm: however, a relevant State practice seems to demonstrate the validity of the proposed hypothesis.

The very first indicator of the customary force of this duty is the existence of many international treaties, signed by a plurality of States, posing specific duties of assistance

⁷⁴ SOLAS, reg. V/33,1. The succeeding paragraphs of the regulation further specify many aspects related to this duty. Precisely, paragraphs from 2 to 6 affirm: «2. The master of a ship in distress or the search and rescue service concerned, after consultation, so far as may be possible, with the masters of ships which answer the distress alert, has the right to requisition one or more of those ships as the master of the ship in distress or the search and rescue service considers best able to render assistance, and it shall be the duty of the master or masters of the ship or ships requisitioned to comply with the requisition by continuing to proceed with all speed to the assistance of persons in distress.

3. Masters of ships shall be released from the obligation imposed by paragraph 1 on learning that their ships have not been requisitioned and that one or more other ships have been requisitioned and are complying with the requisition. This decision shall, if possible, be communicated to the other requisitioned ships and to the search and rescue service.

4. The master of a ship shall be released from the obligation imposed by paragraph 1 and, if his ship has been requisitioned, from the obligation imposed by paragraph 2 on being informed by the persons in distress or by the search and rescue service or by the master of another ship which has reached such persons that assistance is no longer necessary».

5. The provisions of this regulation do not prejudice the Convention for the Unification of Certain Rules of Law Relating to Assistance and Salvage at Sea, signed at Brussels on 23 September 1910, particularly the obligation to render assistance imposed by article 11 of that Convention.

6. Masters of ships who have embarked persons in distress at sea shall treat them with humanity, within the capabilities and limitations of the ship».

⁷⁵ International Convention on Salvage, 28 April 1989 (entered into force 14 July 1996). The Convention has been ratified by 69 States, the combined merchant fleets of which constitute approximately 52% of the gross tonnage of the global merchant fleet.

⁷⁶ International Convention on Salvage, art. 10,1.

⁷⁷ IMO, *Guidelines on the Treatment of Persons Rescued at Sea*, MSC 78/26/Add.2, 2004, appendix, p. 10: «A shipmaster's obligation to render assistance at sea is a longstanding maritime tradition».

upon the shipmasters⁷⁸. As it has been already noted, from the beginning of the twentieth century, States felt the need to “write down” these international obligations. Then, the drafting of other relevant conventions, (SOLAS version of 1974 and the Convention of Salvage of 1989), and their wide acceptance within the international community, may be interpreted as a reflection of the customary force of this ancient practice⁷⁹.

Beyond the mentioned treaties, then, even other conventions imply and presuppose the existence of a general duty of the shipmaster to save the life of persons in distress at sea⁸⁰. In this regard, art. 12 of the Convention on the High Seas⁸¹, art. 98,1 of UNCLOS⁸² and the full text of the SAR Convention are of emblematic relevance. Allegedly, these normative instruments rely on the:

«general tradition and practice of all seafarers and of maritime law regarding the rendering of assistance to persons or ships in distress at sea [...]»⁸³.

Since these international treaties set duties of assistance *over States*⁸⁴, their in-depth analysis will be provided in the following sections of the present chapter⁸⁵. However, what it is important to stress right now is that these conventions presuppose that:

⁷⁸ See ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 93-96.

⁷⁹ On the role played by treaties in the process of identification of customary international law, see ILC, *Draft Conclusions on Identification of Customary International Law*, (special rapporteur Michael Wood), 2018.

⁸⁰ MAGIL., *L'obbligo internazionale del comandante di soccorrere i naufraghi e il diritto ad un porto di rifugio*, cit., p. 713.

⁸¹ HSC, art. 12: «Every State shall require the master of a ship sailing under its flag, in so far as he can do so without serious danger to the ship, the crew or the passengers,

(a) To render assistance to any person found at sea in danger of being lost;

(b) To proceed with all speed to the rescue of persons in distress if informed of their need for assistance, in so far as such action may reasonably be expected of him;

(c) After a collision, to render assistance to the other ship, her crew and her passengers and, where possible, to inform the other ship of the name of his own ship, her port of registry and the nearest port at which she will call».

⁸² See note 147 of this chapter. This concept has been effectively affirmed by BUTTON R., *International Law and Search and Rescue*, cit., p. 32: «It cannot be stressed enough that both the shipmaster and the coastal state must be active participants in the global SAR system - both must be committed to saving lives at sea».

⁸³ NORDQUIST M.; NANDAN S.; ROSENNE S., *United Nations Convention on the Law of the Sea 1982, Commentary*, cit., p. 571.

⁸⁴ See note 73 of this chapter.

⁸⁵ See sections 2(c) and 2(d) of this chapter.

«SAR services throughout the world *depend on ships at sea to assist persons in distress*. It is impossible to arrange SAR services that depend totally upon dedicated shore-based rescue units to provide timely assistance to all persons in distress at sea»⁸⁶.

Furthermore, shipmaster's duties of assistance are included in many national legislations⁸⁷. Just to provide some relevant examples, States like the United States of America⁸⁸, the United Kingdom⁸⁹, China⁹⁰, Malta⁹¹, Italy⁹², Greece⁹³ and Singapore⁹⁴ transpose this principle of humanity within their domestic legal systems.

For all these reasons, it should be concluded that both conventional and general international law require shipmasters to provide assistance to people found in distress at sea⁹⁵.

iii) The normative content of master's duties of assistance

Once clarified who are the recipients⁹⁶ and what are the legal sources of the international rules understudy⁹⁷, it is now intended to analyze the normative content of the shipmaster's duties to provide assistance to people in distress at sea.

⁸⁶ IMO, *Guidelines on the Treatment of Persons Rescued at Sea*, cit., p. 5. Again, see p. 3: «The obligation of the master to render assistance should complement the corresponding obligation of IMO Member Governments to co-ordinate and co-operate in relieving the master of the responsibility to provide follow up care of survivors and to deliver the persons retrieved at sea to a place of safety». Furthermore, see p. 4: «Prompt assistance provided by ships at sea is an essential element of global SAR services; therefore it must remain a top priority for shipmasters, shipping companies and flag States». In scholarship, see MOEN A., *For Those in Peril on the Sea: Search and Rescue under the Law of the Sea Convention*, Ocean Yearbook, 2010, p. 403.

⁸⁷ This topic is in-depth analyzed by ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 96-109.

⁸⁸ U.S. Code, Title 46 (II/A), Chapter V, § 2304.

⁸⁹ UK Merchant Shipping Act, 1995, art. 92.

⁹⁰ Maritime Code of People's Republic of China, 1992, art. 174.

⁹¹ Chapter 234 of the Laws of Malta (Merchant Shipping Act), art. 306.

⁹² Codice della Navigazione, arts. 489-490.

⁹³ Legislative decree 187/1973 regarding the Code of public maritime law, 1999, art. 120.

⁹⁴ Singapore Maritime Conventions Act (Cap IA3, Rev. Ed. 2004).

⁹⁵ Among many others, this position is also adopted by MAGI L., *L'obbligo internazionale del comandante di soccorrere i naufraghi e il diritto ad un porto di rifugio*, cit., p. 714-716; STARITA M., *Il dovere di soccorso in mare e il "diritto di obbedire al diritto" (internazionale) del comandante della nave privata*, cit., p. 17 ss.; TREVISANUT S., *Is there a right to be rescued at sea? A constructive view*, Qil Zoom-in, 2014, p. 3-15; PAPANICOLOPULU I., *The duty to rescue at sea, in peacetime and in war: A general overview*, cit., p. 494; TREVISANUT S., *Search and Rescue Operations in the Mediterranean: Factor of Cooperation or Conflict*, International Journal of Marine and Coastal Law, 2010, p. 527; O'CONNELL D.P., *The International Law of the Sea*, cit., p. 807; COLOMBOS C. J., *The International Law of the Sea*, London, 1967, p. 369.

At first sight, what immediately emerges is that these duties are characterized by a “universalistic nature”. Precisely, International Law imposes on *every* master in charge of *every* ship⁹⁸, whether private or public (including military vessels)⁹⁹, to assist *every* person¹⁰⁰ found in distress in *every* portion of the seas¹⁰¹. Intuitively, the rationale of the duty is to protect human life, the highest and noblest value of the international legal system¹⁰²; therefore, no delimitation deriving from the nationality of people in distress, their status¹⁰³, the private or public nature of the assisting ship nor the marine zone where the emergency occurs¹⁰⁴ is acceptable.

Apart from this feature, however, it is not easy to decode the specific normative content of the international rules understudy¹⁰⁵. Indeed, the expression “*to provide assistance*” may assume many different meanings, which potentially go from requiring the masters to perform just informative activities (for instance, launching S.O.S. signals

⁹⁶ See section 2(b)(i) of the present chapter.

⁹⁷ See section 2(b)(ii) of the present chapter.

⁹⁸ See SOLAS, reg. I/1,(a), in a joint lecture with reg. I/2(k). Again, see art. 1(b) of the 1989 Salvage Convention.

⁹⁹ While it is now widely accepted that the customary rule to provide assistance at sea oblige even military vessels (PAPANICOLOPULU I., *The duty to rescue at sea, in peacetime and in war: A general overview*, cit., p. 494-495), the same cannot be said for what concerns some specific treaty regimes. Precisely, art. 14 of the 1910 Salvage Convention and art. 11 of the Collisions Convention exclude the applicability of the remaining conventional rules to military vessels.

¹⁰⁰ IMO, *Guidelines on the Treatment of Persons Rescued at Sea*, cit., p.4: «All persons in distress at sea should be assisted without delay» (emphasis added).

¹⁰¹ As known, the SOLAS Convention and the Salvage Convention apply in every portion of the oceans.

¹⁰² As programmatically affirmed in the preamble of the *United Nations Charter*, (signed in 1945 and entered into force in the same year), «WE THE PEOPLES OF THE UNITED NATIONS determined to save succeeding generations from the scourge of war, which twice in our life- time has brought untold sorrow to mankind, and to reaffirm faith in fundamental human rights, in the dignity and worth of the human person, in the equal rights of men and women and of nations large and small, and to establish conditions under which justice and respect for the obligations arising from treaties and other sources of international law can be maintained, and to promote social progress and better standards of life in larger freedom».

¹⁰³ Among many others, see NERI K., *The Challenges Faced by Private Ships in Large-scale Rescue Operations at Sea*, cit., p. 99; TANAKA Y., *The International Law of the Sea*, cit., p. 213; SCOVAZZI T., *Human Rights and Immigration at Sea*, cit., p. 225; TREVISANUT S., *Is there a right to be rescued at sea? A constructive view*, cit., p. 14-15; KLEIN N., *A Case for Harmonizing Laws on Maritime Interceptions of Irregular Migrants*, *International and Comparative Law Quarterly*, 2014, p. 797; BARNES R., *Refugee Law at Sea*, *International and Comparative Law Quarterly*, 2004, p. 50.

¹⁰⁴ PAPANICOLOPULU I., *Le operazioni di search and rescue: problemi e lacune del diritto internazionale*, cit., p. 511.

¹⁰⁵ KENNEY F.; TASIKAS V., *The Tampa Incident: IMO Perspectives and Responses on the Treatment of Persons Rescued at Sea*, cit., p. 151; DAVIES M., *Obligations and Implications for Ships Encountering Persons in Need of Assistance at Sea*, *Washington International Law Journal*, 2003, p. 140.

and/or informing SAR national services), up to extremely dangerous and costly operations (such as *rescuing* persons in distress at sea)¹⁰⁶.

Intuitively, this “normative flexibility”¹⁰⁷ stems from the fact that it is not reasonable to *a priori* establish which specific actions are necessary for saving people atsea in every possible circumstance: meteorological conditions, the technology of the ships involved, their manning, along with many other relevant factors, make unique every assistance operation¹⁰⁸.

After the renowned *Castor* (2000) and *Tampa* (2001) incidents¹⁰⁹, the IMO felt the need to shed some light about the content of the duties on assistance at sea. In particular, the Organization drafted the *2004 Guidelines on the Treatment of Persons Rescued at Sea*¹¹⁰: the reading of this and other¹¹¹ soft law instruments helps in clarifying some of the fundamental features characterizing the international duties object of analysis. According to the IMO, International Law generally requires the shipmasters to:

¹⁰⁶ MANDRIOLI D., *The International Duty to Assist People in Distress at Sea in the Era of Unmanned Navigation: No Place for People On Board*, cit., p. 85.

¹⁰⁷ Beyond this specific field, more in general, Law of the Sea rules are usually characterized by this normative peculiarity. As noted by CANNIZZARO E., *Il principio di proporzionalità nel diritto internazionale*, cit., p. 98: «[...] in questo settore l’elaborazione di regole di comportamento generali è particolarmente difficile; la definizione di un equilibrio congruo fra più interessi risente infatti dell’esigenza di tener conto di situazioni di fatto che variano anche notevolmente. La difficoltà di elaborare regole *ad hoc* per ogni possibile situazione ha quindi favorito la formazione di norme elastiche, atte ad assumere un contenuto in relazione all’accertamento e alla valutazione, caso per caso, delle circostanze concrete».

¹⁰⁸ BRIOZZO G.M., *Il ruolo del comandante di nave in relazione ad ipotesi di soccorso in mare nel diritto nazionale ed internazionale*, *Il Diritto Marittimo*, 2019, p. 717; KENNEY F.; TASIKAS V., *The Tampa Incident: IMO Perspectives and Responses on the Treatment of Persons Rescued at Sea*, cit., p. 151.

¹⁰⁹ For an extended analysis of these incidents and their legal aspects, see CHIRCOP A., *Living with Ships in Distress: a new IMO Decision-Making Framework for the Requesting and Granting of Refuge*, *WMU Journal of Maritime Affairs*, 2004, p. 31-49; KENNEY F.; TASIKAS V., *The Tampa Incident: IMO Perspectives and Responses on the Treatment of Persons Rescued at Sea*, cit.; WILLHEIM E., *MV Tampa: the Australian Response*, *International Journal of Refugee Law*, 2003, p. 159-191; TAUMAN J., *Rescue at Sea, but No Where to Go: the Cloudy Legal Waters of the Tampa Crisis*, *Pacific Rim Law and Policy Journal*, 2002, p. 461-496; FORNARI, M., *Soccorso di profughi in mare e diritto di asilo: questioni di diritto internazionale sollevate dalla vicenda della nave Tampa*, *La Comunità Internazionale*, 2002, p. 61-78.

¹¹⁰ See note 77 of this chapter.

¹¹¹ In this regard, we refer to *International Aeronautical and Maritime Search and Rescue Manual* (IAMSAR), 2016; IMO, *Large Scale Rescue Operations at Sea Guidance on Ensuring the Safety and Security of Seafarers and Rescued Persons*, Second Edition, 2015. With specific regard to the IAMSAR, it must be highlighted that IMO Guidelines of 2004 explicitly asks shipmasters to comply with its requirements (see p. 5).

«do everything possible, within the capabilities and limitations of the ship, to treat the survivors humanely and to meet their immediate needs»¹¹².

Comprehensibly, the duty does not get to the point of obliging the shipmasters to perform activities that can endanger the life of the crew and the integrity of the assisting ship¹¹³. Although the rationale of this provision is to guarantee the highest level of safety to people in distress at sea, shipmasters shall provide the maximum assistance *that is concretely achievable in the light of the existing circumstances*¹¹⁴. Accordingly, International Law explicitly excludes the mandatory nature of the duty when the occurring circumstances make such activities “unable”, “unreasonable” or “unnecessary”¹¹⁵.

In this specific regard, however, it is important to highlight that *commercial reasons are not included among the exceptions to the duty to assist people at sea*¹¹⁶. Broadly speaking, the margin of discretion given to the master in evaluating the possibility to assist people at sea is independent of economic implications¹¹⁷. This position is not only supported by legal arguments, but also by ethical concerns, which, as previously noted, are the solid grounds justifying the existence of the international duties of assistance.

In abstracto, the best possible care to which master’s conducts shall aspire consist of three cumulative activities: (1) to embark people in distress at sea, (2) to treat them humanely; (3) to disembark them as soon as possible into a *place of safety*. The performance of these operations realizes the composite activity of *rescue*, here defined as:

¹¹² IMO, *Guidelines on the Treatment of Persons Rescued at Sea*, cit., p. 5.

¹¹³ DE VITTOR F., *Il Port State Control sulle navi delle ONG che prestano soccorso in mare*, cit., p. 113.

¹¹⁴ SEVERANCE A., *The Duty to Render Assistance in the Satellite Age*, cit., p. 387: «the master is only required to render assistance when reasonable, making it necessary to analyze each instance of failing to render assistance on a case-by-case basis». This position is more recently affirmed by BAUGHENS., *Who is the master now?*, cit., p. 136.

¹¹⁵ In particular, see SOLAS, reg. V/33,1. This conclusion may also be reached through the reading of art. 98,1 of UNCLOS. To more in this regard, see BUTTON R., *International Law and Search and Rescue*, cit., p. 32-33; PAPANICOLOPULU I., *The duty to rescue at sea, in peacetime and in war: A general overview*, cit., p. 497.

¹¹⁶ The issue concerning the economic implications arising from the performance of assistance activities is in-depth analyzed by DAVIES M., *Obligations and Implications for Ships Encountering Persons in Need of Assistance at Sea*, cit.

¹¹⁷ MANDRIOLI D., *The International Duty to Assist People in Distress at Sea in the Era of Unmanned Navigation: No Place for People On Board*, cit., p. 86 and 92.

«An operation to retrieve persons in distress, provide for their initial medical or other needs, and deliver them to a place of safety»¹¹⁸.

From a factual perspective, the operation of retrieving people on board (1) could be particularly dangerous for the assisting ship. Indeed, the vessel needs to approach the persons in distress and embark them. This maneuver could be highly hazardous and, consequently, not always practicable. For example, whether conditions may pose serious threats to the assisting ship in approaching people in distress at sea, so that the master shall evaluate whether it could be *reasonable* to concretely perform rescuing activities¹¹⁹. Moreover, the design of the ship is another factor to take into strong account¹²⁰; the assisting vessel needs to have sufficient space for embarking people on board. Otherwise, the performance of the rescuing activities should be considered *unreasonable* in light of the specific circumstances of the case¹²¹.

Continuing the analysis about the composite activity of rescue, once embarked people on board (where possible), the master is obliged to (2):

«[...] treat them with humanity, within the capabilities and limitations of the ship»¹²².

More in detail, International Law asks the master to ensure that the accommodation of the rescued persons complies with adequate levels of hygienic conditions¹²³; sufficient food and water must be provided¹²⁴; furthermore, the ship shall be equipped

¹¹⁸ SAR Convention, art. 1.3.2.

¹¹⁹ IAMSAR Vol. III, Section 2.4: «Masters of vessels proceeding to assist should assess the risks they may encounter on scene, including the risks such as those associated with leaking cargo, etc. Information should be sought as necessary from the distressed craft and/or from the RCC».

¹²⁰ See IMO, *Large Scale Rescue Operations at Sea Guidance on Ensuring the Safety and Security of Seafarers and Rescued Persons*, cit., p. 5.

¹²¹ See note 115 of the present chapter.

¹²² SOLAS, reg. V/33, 6. This duty is further specified in many IMO soft law instruments. In particular, see *Large Scale Rescue Operations at Sea Guidance on Ensuring the Safety and Security of Seafarers and Rescued Persons*, cit., p. 8, according to which masters shall treat rescued persons «as humanely as the design and limitations of the ship and the capability of the crew allow». Similarly, see IAMSAR, Vol. III, Appendix A-1.6: «Masters of ships who have embarked persons in distress at sea shall treat them with humanity, within the capabilities and limitations of the ship». In scholarship, among many others, see MAGI L., *L'obbligo internazionale del comandante di soccorrere i naufraghi e il diritto ad un porto di rifugio*, cit., p. 717; ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 78.

¹²³ SOLAS, reg. V/33, 6.

¹²⁴ *Large Scale Rescue Operations at Sea Guidance on Ensuring the Safety and Security of Seafarers and Rescued Persons*, cit., p. 4: «Those rescued may be seriously dehydrated. Consequently, the provision of suitable quantities of drinking water is and will continue to be a priority while they remain

with medical supplies to give, when needed, first medical aid to people in distress at sea¹²⁵.

Rescuing operations do not end with the embarkation of the persons on board; from a legal (and logical¹²⁶) point of view, the international duty of assistance is fulfilled only when rescued people are disembarked in a *place of safety*¹²⁷ (3). For ensuring methodological consistency to the present research, the analysis of the process of disembarkation of rescued people and the identification of the “place of safety” will be addressed in section 2(d)(iii) of this chapter; indeed, since this field mainly deals with coastal States’ obligations¹²⁸, it looks more coherent to address this topic within the section properly dedicated to the analysis of coastal States’ duties of assistance at sea. In any case, what is important to stress here is that International Law obliges shipmasters not only to embark (where possible) people in distress at sea (1) and to treat them humanely (2), but also to disembark them on dry land (3). Accordingly:

«The term ‘rescue’ [...] implies that the people assisted should be delivered ‘to a place of safety’. While a ship may temporarily be considered as a place of safety, people saved will eventually have to be disembarked on dry land»¹²⁹.

Coherently with this, some authors further added that the shipmasters are not just the holders of the international duties of assistance; specularly, they also enjoy the

on board. Unless disembarkation takes place very soon after the rescue occurs, the ship’s food supplies may rapidly diminish, particularly if large numbers of migrants are embarked. In this case, consideration may be given to requesting the Rescue Co-ordination Centre (RCC) to arrange for the ship to be provided with additional appropriate food and bottled water».

¹²⁵ *Large Scale Rescue Operations at Sea Guidance on Ensuring the Safety and Security of Seafarers and Rescued Persons*, cit., p. 4; IAMSAR, Vol. III, section 2.

¹²⁶ MAGIL., *L’obbligo internazionale del comandante di soccorrere i naufraghi e il diritto ad un porto di rifugio*, cit., p. 720: «Esso [disembarkation] serve a scongiurare la situazione paradossale che verrebbe a verificarsi quando il comandante, obbligato dagli Stati ad operare il salvataggio, si trovasse nella condizione di vedersi negare dai medesimi la possibilità di sbarcare le persone tratte in salvo sulla terraferma, in un luogo sicuro». On the same view, see PAPANICOLOPULU I., *Immigrazione irregolare via mare, tutela della vita umana e organizzazioni non governative*, Diritto, Immigrazione e Cittadinanza, 2017, p. 13; RATCHOVIC M., *The Concept of ‘Place of Safety’*, cit.; KENNEY F.; TASIKAS V., *The Tampa Incident: IMO Perspectives and Responses on the Treatment of Persons Rescued at Sea*, cit.

¹²⁷ Accordingly, see SOLAS, reg. V/33, 1-1; IMO, *Guidelines on the Treatment of Persons Rescued at Sea*, cit., p. 6.

¹²⁸ As widely known, this field is regulated by the SAR Convention, dealing with Coastal States’ rights and duties in the field of providing assistance at sea.

¹²⁹ PAPANICOLOPULU I., *International Law and the Protection of People at Sea*, cit., p. 189. On the same view, see TANAKA Y., *The International Law of the Sea*, cit., p. 214.

“right to obey the law”¹³⁰, according to which port States cannot oppose master’s decision to enter within their ports to disembark rescued people¹³¹.

In recent times, this approach has been adopted by Italian courts. Precisely, in 2019, the Italian tribunal of Agrigento was called to decide whether Carola Rackete, the master of the vessel “Sea-Watch 3”, was responsible for having breached Italian criminal law for entering the port of Lampedusa without national authorisation¹³². On that occasion, it was ascertained that the shipmaster was acting in full compliance with the international duty of assistance; therefore, the Italian court excluded her domestic criminal responsibility¹³³. This example may be read as a demonstration that the master’s duty of assistance logically corresponds to a specular right to “have the faculty to comply with International Law”; otherwise, the entire normative field already analyzed would lose its coherence¹³⁴.

Furthermore, the independence of the shipmaster in performing assistance measures is reached from the reading of reg. V/34-1 of the SOLAS Convention, pursuant to which:

«The owner, the charterer, the company operating the ship as defined in regulation IX/1, or any other person shall not prevent or restrict the master of the ship from taking

¹³⁰ This provocative expression is taken by STARITA M., *Il dovere di soccorso in mare e il “diritto di obbedire al diritto” (internazionale) del comandante della nave privata*, cit.

¹³¹ MAGI L., *L’obbligo internazionale del comandante di soccorrere i naufraghi e il diritto ad un porto di rifugio*, cit., p. 720.

¹³² See CUSUMANO E.; VILLA M., *From “Angels” to “Vice Smugglers”: the Criminalization of Sea Rescue NGOs in Italy*, European Journal of Criminal Policy and Research, 2021, p. 23-40; ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 180; PITEA C.; ZIRULIA S., *L’obbligo di sbarcare i naufraghi in un luogo sicuro: prove di dialogo tra diritto penale e diritto internazionale a margine del caso Sea Watch*, Diritti Umani e Diritto Internazionale, 2020, p. 659- 687; GRADONI L.; PASQUET L., *Lisistrata a Lapedusa: una riflessione sul caso Sea-Watch 3*, SIDI Blog, 2019; ROSSI P.F., *Politica dei “porti chiusi” e il diritto internazionale: il caso Sea-Watch 3*, Osservatorio costituzionale, 2019, p. 1-23.

¹³³ Tribunale di Agrigento, *Ordinanza sulla richiesta di convalida di arresto e di applicazione della misura cautelare*, N. 2592/19, 2 luglio 2019. This decision has been confirmed by the succeeding decision of the Italian Corte di cassazione (sez. III penale), n. 112, 16 gennaio 2020. For a critical analysis on this jurisprudence, see MUNARI F., *Migrazioni, SAR, ruolo e responsabilità delle ONG*, cit.

¹³⁴ STARITA M., *Il dovere di soccorso in mare e il “diritto di obbedire al diritto” (internazionale) del comandante della nave privata*, cit., p. 180: «Il diritto di obbedire al diritto internazionale ha per contropartita un obbligo dello Stato. È un rovesciamento della relazione giuridica *prima facie* intercorrente tra Stato e individuo in base alle norme internazionali in materia di dovere di soccorso: lo Stato (qualunque Stato, di bandiera, costiero, responsabile SAR) è tenuto a non ostacolare le attività compiute per dare esecuzione al dovere internazionale di soccorso e a non far ricadere sul comandante le conseguenze sfavorevoli delle attività medesime né sul piano penale né su quello civile».

*or executing any decision which, in the master's professional judgement, is necessary for safety of life at sea and protection of the marine environment»*¹³⁵.

This provision remarks the full *discretion* of the master in complying with International Law. Allegedly, this means that no one, *not even States*, may interfere with his/her decisions in this respect.

Once acknowledged this, one last point needs to be further specified: when performing assistance activities, the shipmasters, albeit independent, are called to cooperate with the governmental authorities involved in SAR operations. This means that they must coordinate their activities with the *Rescue Coordination Centers* (RCC)¹³⁶ of the coastal States¹³⁷ and that they have to comply with:

«any relevant requirements of the Governments responsible for the SAR region where the survivors were recovered, or of another responding coastal State, and seek addition guidance from those authorities where difficulties arise in complying with such requirements»¹³⁸.

As it was said before, indeed, International Law protects the life of people in distress at sea through the drafting of a composite regulation, which contextually involves many legal subjects; therefore, their conduct shall be coordinated with each other and shall not endanger the integrity of this complex and composite legal framework.

c) International duties of the flag State

Beyond the international duties pending upon the shipmasters, even States are directly involved in the protection of the life of people in distress at sea. The following pages will deal with the analysis of States' international duties in this regard. Precisely,

¹³⁵ Emphasis added.

¹³⁶ Rescue Coordination Centers (RCC) are defined by the SAR Convention, art. 1.3.5 as: «A unit responsible for promoting efficient organization of search and rescue services and for co-ordinating the conduct of search and rescue operations within a search and rescue region».

¹³⁷ IMO, *Guidelines on the Treatment of Persons Rescued at Sea*, cit., p. 6.

¹³⁸ IMO, *Guidelines on the Treatment of Persons Rescued at Sea*, cit., p. 6. A similar statement is granted by SOLAS, reg. V/33 1-1.

the present section observes *flag States'* obligations, while section 2(d) will describe the rules concerning *coastal States'* involvement in this legal scenario.

Before starting the proposed analysis, it must be underlined that this study is not limited in addressing Law of the Sea obligations of assistance, but it also deals with the rules provided by the international regime of Human Rights Law¹³⁹. International duties on assistance are aimed to protect human life; precisely, they are united by the goal to save people in distress at sea. From this perspective, they are:

«at the border between the international law of the sea and international human rights law»¹⁴⁰.

As it has been notoriously remarked by scholars¹⁴¹ and international tribunals¹⁴², it is widely accepted that Human Rights Law fully applies in the marine domain¹⁴³. This

¹³⁹ For a detailed analysis on the features of the legal regime of Human Rights Law, see TOMUSCHAT C., *Human Rights: Between Idealism and Realism*, cit.

¹⁴⁰ SCOVAZZI T., *Human Rights and Immigration at Sea*, cit., p. 225. In this regard, it is interesting to report what observed by ZAMUNER E., *Search and Rescue of Migrants in the Mediterranean Sea between Public Responsibility and Private Engagement: an International and EU Law Perspective*, Ordine Internazionale e Diritti Umani, 2019, p. 960: «one of the most ancient rules of maritime law – that which requires every ship to provide assistance to human beings in distress at sea – may be indeed considered a human rights norm *ante litteram*».

¹⁴¹ Among many others, we refer to the studies conducted by PAPASTAVRIDIS E., *The European Convention of Human Rights and Migration at Sea: Reading the “Jurisdictional Threshold” of the Convention under the Law of the Sea Paradigm*, cit.; NDIAYE T.M., *Human Rights and the Law of the Sea*, Beijing Law Review, 2019, p. 261-277; PAPANICOLOPULU I., *International Law and the Protection of People at Sea*, cit.; PAPANICOLOPULU I., *Human Rights and the Law of the Sea*, in ATTARD D.; FITZMAURICE M.; MARTINEZ GUTIERREZ N. (eds.), *The IMLI Manual of International Maritime Law*, Vol.I, Oxford, 2014, p. 509-533; SOHN L., *International Law of the Sea and Human Rights Issues*, in CLINGAN T. (ed), *The Law of the Sea: What Lies Ahead?*, Honolulu, 1988, p. 51-72; TREVES T., *Human Rights and the Law of the Sea*, *Berkley Journal of International Law*, 2010, p. 1-14; OXMAN B., *Human Rights and the United Nations Convention on the Law of the Sea*, *Columbia Journal of Transnational Law*, 1997, p. 399-429.

¹⁴² In particular, we quote to the ECHR jurisprudence. In this regard, see *Hirsi Jamaa and Others v. Italy*, Judgement of 23 February 2012 (App. No. 27765/09); *Medvedyev and Others v. France*, Judgement of 29 March 2010, (App. No. 3394/03). Then, and very recently, this issue has been addressed by the Human Rights Committee in the decisions *A.S. and Others v. Malta*, Decision of the 13 March January 2021, CCPR/C/128/D/3043/2017, and *A.S. and Others v. Italy*, Decision of the 13 March January 2021, CCPR/C/130/D/3042/2017 (for a comment to these decisions, see MILANOVIC M., *Drowning Migrants, the Human Rights Committee, and Extraterritorial Human Rights Obligations*, EJIL Talk!, 16 March 2021). More in the past, even ITLOS observed that: «Considerations of humanity must apply in the law of the sea [...]» (*Saiga case*, cit., para. 155). Similarly, see *The Arctic Sunrise Arbitration* cit., para. 198: «In determining the claims by the Netherlands in relation to the interpretation and application of the Convention, the Tribunal may, therefore, pursuant to Article 293, have regard to the extent necessary to rules of customary international law, including international human rights standards, not incompatible with the Convention, in order to assist in the interpretation and application of the Convention’s provisions that authorise the arrest or detention of a vessel and persons».

fact poses many issues concerning the systemic integration occurring between these two international legal regimes¹⁴⁴.

Within this picture, although the present research is mainly focused on the Law of the Sea implications arising from the use of MASS¹⁴⁵, the protection of persons in distress at sea is one of those fields in which the systemic integration between the two regimes is so manifest to become a fundamental characteristic, whose analysis, therefore, cannot be dismissed¹⁴⁶.

i) Analysis of flag State's obligations under the Law of the Sea

I) Art. 98,1 of UNCLOS: a duty upon the flag States, the masters or both?

About the protection of the people in distress at sea, UNCLOS poses a duty upon the *flag States*, pursuant to which:

«Every State shall require the master of a ship flying its flag, in so far as he can do so without serious danger to the ship, the crew or the passengers:

- (a) to render assistance to any person found at sea in danger of being lost;
- (b) to proceed with all possible speed to the rescue of persons in distress, if informed of their need of assistance, in so far as such action may reasonably be expected of him;
- (c) after a collision, to render assistance to the other ship, its crew and its passengers and, where possible, to inform the other ship of the name of his own ship, its port of registry and the nearest port at which it will call»¹⁴⁷.

¹⁴³ Human Rights at Sea (HRS), *Geneva Declaration on Human Rights at Sea*, First Version, 2019: «Human rights are universal; they apply at sea, as they do on land».

¹⁴⁴ In this specific regard, see PAPANICOLOPULU I., *International Law and the Protection of People at Sea*, cit., p. 61-110.

¹⁴⁵ For more information about the methodological approach adopted during this work, see section 4 of the introduction of this thesis.

¹⁴⁶ ZAMUNER E., *Search and Rescue of Migrants in the Mediterranean Sea between Public Responsibility and Private Engagement: an International and EU Law Perspective*, cit., p. 975: «Since States cannot ignore “considerations of humanity” under the law of the sea to the same extent they cannot ignore the intended and actual operation of ships flying their flag which by virtue of their activities are likely to have an impact [...] on the protection of human rights». To more information in this regard, see TANAKA Y., *The International Law of the Sea*, cit., p. 215; KOMP L.M., *The Duty to Assist Persons in Distress: An Alternative Source of Protection against the Return of Migrants and Asylum Seekers to the High Seas?*, in MORENO LAX V.; PAPASTAVRIDIS E. (eds.), *'Boat Refugees' and Migrants at Sea*, cit., p. 222-247.

¹⁴⁷ UNCLOS, art. 98,1.

Whereas the UNCLOS relies on the shipmaster's efforts in assisting persons at sea, art. 98,1 sets a *different and further* obligation, according to which even flag States are called to play a relevant role in the protection of the life of people in distress at sea.

By interpreting the reported provision in the light of the ordinary meaning of its terms¹⁴⁸, this norm obliges *States* to ensure that the masters of ships flying their flag provide assistance to people found in distress at sea. Therefore, it is here sustained that the unique recipients of art. 98,1 of UNCLOS are the flag States, and not (also) the masters¹⁴⁹.

In scholarship, this position is not always pacific. Some authors are of the view that this rule gives birth to an international duty pending upon flag States *and* shipmasters both¹⁵⁰. This sort of "subjective confusion" emerges from the reading of IMO's documents:

«A shipmaster's obligation to render assistance at sea is a longstanding maritime tradition. [...] Article 98 of the United Nations Convention on the Law of the Sea, 1982 (UNCLOS) codifies this obligation [...]»¹⁵¹.

Presumably, the promoters of the reported interpretation reach this conclusion availing to the supplementary means of interpretation codified in art. 32 of the VCLT, in particular by observing the preparatory works and the circumstances of the conclusion of UNCLOS¹⁵².

¹⁴⁸ VCLT, art. 31,1.

¹⁴⁹ On the same view, see MAGI L., *L'obbligo internazionale del comandante di soccorrere i naufraghi e il diritto ad un porto di rifugio*, cit., p. 712.

¹⁵⁰ Among others, see JORDAN S., *Captain, My Captain: A Look at Autonomous Ships and How They Should Operate under Admiralty Law*, Indiana International & Comparative Law Review, 2020, p. 298; STARITA M., *Il dovere di soccorso in mare e il "diritto di obbedire al diritto" (internazionale) del comandante della nave privata*, cit.; ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 43-49; KENNEY F.; TASIKAS V., *The Tampa Incident: IMO Perspectives and Responses on the Treatment of Persons Rescued at Sea*, cit., p. 150.

¹⁵¹ IMO *Guidelines on the Treatment of Persons Rescued at Sea*, cit., Appendix, p. 10. An analogous position has been adopted by European Parliament in the document *Search and Rescue in the Mediterranean*, 2021, p. 2 (available at the website www.europarl.europa.eu): «The master has an obligation to render assistance to those in distress at sea without regard to their nationality, status or the circumstances in which they are found. *This is based on the United Nations Convention on the Law of the Sea (UNCLOS, Article 98(1))* [...]» (emphasis added). Again, see NORDQUIST M.; NANDAN S.; ROSENNE S., *United Nations Convention on the Law of the Sea 1982, Commentary*, cit., Vol. III, p. 171.

¹⁵² VCLT, art. 32: «Recourse may be had to supplementary means of interpretation, including the preparatory work of the treaty and the circumstances of its conclusion, in order to confirm the meaning resulting from the application of article 31, or to determine the meaning when the interpretation according to article 31: (a) leaves the meaning ambiguous or obscure; or (b) leads to a result which is manifestly absurd or unreasonable».

As it is known, art. 98,1 of UNCLOS precisely reproduces the text of art. 12 of the Convention on the High Seas¹⁵³, which, in turn, finds its origins in the ILC Articles Concerning the Law of the Sea of 1956¹⁵⁴. During the first session of ILC's works, the special rapporteur Francois examined the norms in force at those times in the field of assistance at sea. In this respect, he strongly believed in the customary force of the already mentioned art. 11,1 of the 1910 Salvage Convention, art. 8 of the 1910 Collisions Convention and art. 37,1 of Chapter V of the 1914 SOLAS Convention¹⁵⁵. For this reason, the first draft of the ILC Project set an identical rule. Precisely, art. 11 of the *Provisional Articles concerning the Regime of the High Seas* stated that:

«The master of a vessel is bound, so far as he can do without serious endanger to his vessel, her crew and her passengers, to render assistance to any person found at sea in danger of being lost. After a collision, the master of each of the vessels in collision is bound, so far as he can do so without serious danger to his vessel, her crew and her passengers, to render assistance to the other vessel, her crew and her passengers»¹⁵⁶.

Albeit it is true that the drafting of art. 98,1 of UNCLOS took strong inspiration from the shipmasters' duties to provide assistance at sea, it is also true that, after the comments of States on the ILC provisional articles¹⁵⁷, the original text was largely modified. In this regard, it is of emblematic relevance the position assumed by the State of Norway, according to which:

«Although concerned in substance with individual duties, this article, according to the comments, is intended to be an expression of international law. It is not clear why the article [...] *fails to enjoin States to enact the necessary legislation*»¹⁵⁸.

In response to this debate, the wording of the article was modified in the current version. Manifestly, this change had a substantial impact on the scope and the content of

¹⁵³ See note 81 of the present chapter.

¹⁵⁴ ILC, Articles Concerning the Law of the Sea, art. 36.

¹⁵⁵ ILC, Report of Special Rapporteur Mr J.P.A. Francois, Doc. A/CN. 4/17, in YILC (1950), vol. II, p. 40 : «Il y aurait lieu d'énoncer ces principes dans l'ensemble des règles à élaborer par la Commission».

¹⁵⁶ ILC, *Provisional Articles concerning the Regime of the High Seas*, art. 11. The text is available at ILC, Report of the International Law Commission on the Work of its 7th Session (2 May-8 July 1955), UN Doc. A/2934, p. 24.

¹⁵⁷ ILC, *Comments by Governments on the Provisional Articles concerning the Regime of the High Seas*, UN Doc. A/CN.4.99, Yearbook of the International Law Commission, Vol. II, 1956, p. 37-102.

¹⁵⁸ ILC, *Comments by Governments on the Provisional Articles concerning the Regime of the High Seas*, cit., p. 67 (emphasis added).

this rule: while the first version affirmed that the master is the direct recipient, the new draft (picked up in the Convention on the High Seas and in the UNCLOS) obliges the flag State.

Therefore, the recourse to supplementary means of interpretation, instead of contradicting what immediately emerges from a textual reading of the provision, confirms the validity of the proposed hypothesis, *i.e.* that art. 98,1 of UNCLOS sets just an international duty upon flag States, and not also upon the masters. If the international community had simply wanted to enlarge the “audience of the subjects” of the duty – and so even including States besides masters – it could have maintained the previous text and just add the flag States in the list of the legal recipients. Instead, the new version literally obliges the flag State, “downgrading” the figure of the master from the holder of the duty to a mere “normative element” of the flag State’s obligation.

Manifestly, this conclusion does not exclude that International Law poses duties of assistance over the masters¹⁵⁹. Actually, from the reading of art. 98,1 of UNCLOS, it is evident that flag State’s obligations necessarily presuppose and rely on the existence of shipmaster’s international duties of assistance¹⁶⁰. However, the flag States’ and the masters’ involvements in the protection of people at sea are regulated by different international provisions; in this respect, art. 98,1 of UNCLOS limitedly deals with flag States’ duties of assistance¹⁶¹.

II) The scope and content of flag States’ duties of assistance provided by UNCLOS

Although the rule under study is included in Part VII of UNCLOS – dealing with the high seas – the scope of art. 98,1 is not geographically delimited; coherently with its universalistic purpose¹⁶², the duty of assistance pending upon flag States operates in

¹⁵⁹ See note 83 of this chapter.

¹⁶⁰ Coherently to that, the present chapter already in-depth analyzed these international provisions in section 2(b) of the present chapter of this research.

¹⁶¹ MORENO LAX V.; GHELZELBASH D.; KLEIN N., *Between life, security and rights: Framing the interdiction of ‘boat migrants’ in the Central Mediterranean and Australia*, Leiden Journal of International Law, 2019, p. 720; MUNARI F., *Migrazioni, SAR, ruolo e responsabilità delle ONG*, cit., p. 335; PAPANICOLOPULU I., *The duty to rescue at sea, in peacetime and in war: A general overview*, cit., p. 495.

¹⁶² See section 2(b)(iii) of this chapter.

every portion of the oceans. Indeed, due to the cross-reference provided in art. 58,2 of UNCLOS¹⁶³, this duty applies in the exclusive economic zone¹⁶⁴. Then, a large majority of scholars agree that it also operates within territorial waters¹⁶⁵. This conclusion is reached through the reading of art. 18,2 of UNCLOS, regulating the right of innocent passage, under which:

«[...] passage includes stopping and anchoring, but only in so far as the same are incidental to ordinary navigation or are rendered necessary by force majeure or distress or *for the purpose of rendering assistance to persons, ships or aircraft in danger or distress*»¹⁶⁶.

Albeit art. 18,2 does not provide the same wording of art. 98,1, it is reasonable to infer that an almost identical duty of assistance applies both on the high seas and in territorial waters¹⁶⁷.

For what concerns the normative content of art. 98,1 of UNCLOS, this norm sets a generic *duty of conduct*¹⁶⁸. Broadly speaking, the Law of the Sea requires flag States to *ensure* that the shipmasters are in a position to concretely assist people in distress at sea. In particular, UNCLOS asks States to make sure that their masters can provide *the best possible level of assistance theoretically achievable, i.e. rescuing people in distress at sea*¹⁶⁹.

¹⁶³ See note 62 of this chapter. In this specific regard, see RATCOVICH M., *The Concept of Place of Safety: yet Another Self-Contained Maritime Rule or Sustainable Solution to the Ever-Controversial Question of Where to Disembark Migrants Rescued at Sea*, Australian Yearbook of International Law, 2015, p. 84.

¹⁶⁴ NORDQUIST M.; NANDAN S.; ROSENNE S., *United Nations Convention on the Law of the Sea 1982, Commentary*, cit., Vol. III, p. 176-177.

¹⁶⁵ ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 41: «UNCLOS Article 18(2) reflects the general obligation to render assistance found in Article 98». Of the same view, see STARITA M., *Il dovere di soccorso in mare e il “diritto di obbedire al diritto” (internazionale) del comandante della nave privata*, cit., p. 19; BARNES R., *Article 18*, in PROELSS A. (ed.), *United Nations Convention on the Law of the Sea. A Commentary*, München, 2017, p. 185; PAPANICOLOPULU I., *The duty to rescue at sea, in peacetime and in war: A general overview*, cit., p. 495; RATCOVICH M., *The Concept of Place of Safety*, cit., p. 83-86; SCOVAZZI T., *Human Rights and Immigration at Sea*, cit., p. 226; TREVISANUT S., *Search and Rescue Operations in the Mediterranean: Factor of Cooperation or Conflict*, cit., p. 526.

¹⁶⁶ (emphasis added).

¹⁶⁷ NORDQUIST M.; NANDAN S.; ROSENNE S., *United Nations Convention on the Law of the Sea 1982, Commentary*, cit., Vol. III, p. 176.

¹⁶⁸ See note 136 of the first chapter of this research. With specific regard to the nature of the peculiarities of Law of the Sea “due diligence obligations”, see PAPANICOLOPULU I., *Due Diligence in the Law of the Sea*, cit.

¹⁶⁹ NERI K., *The Challenges Faced by Private Ships in Large-scale Rescue Operations at Sea*, cit., p. 98.

As noted before, procedures of assistance at sea potentially assume many forms, depending on the specific circumstances of the case. Within this broad concept, the best possible care to which masters shall aspire consists of the performance of rescuing activities, here intended as:

«[...] to retrieve persons in distress, provide for their initial medical or other needs, and deliver them to a place of safety»¹⁷⁰.

Once remembered this, it must be further remarked that States, in strengthening their control over ships flying their flag, shall not simply put their masters in the condition to generally provide assistance to people at sea, but specifically to *rescue* them. In fact, UNCLOS explicitly affirms that flag States shall require “their” master to:

«proceed with all possible speed to the *rescue of persons in distress* [...]»¹⁷¹.

The possibility to perform rescue operations depends on the design, the technology, the manning and the conditions of the assisting ship¹⁷²: from this perspective, the more the navigation is safe, the more chances there are for the master to *rescue* people facing a situation of emergency at sea. In the first chapter of this research¹⁷³, it has been outlined that art. 94 of UNCLOS plays a fundamental role in the international regulation on safety of navigation. Precisely, this provision obliges States to adopt measures for ensuring that the construction, the seaworthiness, the manning and the equipment of ships flying their flag respect safety standards¹⁷⁴. This norm traces a parameter of conduct even for what concerns the performance of the flag State’s duty of assistance here analyzed¹⁷⁵. Accordingly, as explicitly declared by UNCLOS, the adoption of these measures is aimed at ensuring that:

«the master, officers and, to the extent appropriate, the crew are fully conversant with and required to observe the applicable international regulations concerning the

¹⁷⁰ SAR Convention, art. 1.3.2.

¹⁷¹ UNCLOS, art. 98,1 letter (b) (emphasis added).

¹⁷² See section 3(b) of the first chapter of the present research.

¹⁷³ Ibid.

¹⁷⁴ UNCLOS, article 94,3.

¹⁷⁵ ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 129-133 and 190; SCOVAZZI T., *Human Rights and Immigration at Sea*, cit., p. 226.

*safety of life at sea, the prevention of collisions, the prevention, reduction and control of marine pollution, and the maintenance of communications by radio»*¹⁷⁶.

From this perspective, art. 98,1 of UNCLOS must be read as a specific declination of the general duty over States to strengthen a *genuine link* with ships flying their flag¹⁷⁷. This interpretation well explains why this duty is provided in Part VII of the Convention, dealing with the regulation of the high seas. Accordingly, this is not because (as noted before) the scope of art. 98,1 is geographically limited to the waters beyond national jurisdiction; actually, this is because the *flag State's duty of assistance is a constitutive element of the regime of flag State jurisdiction*, regulated in this specific part of UNCLOS¹⁷⁸.

Always dealing with the normative content of art. 98,1 of UNCLOS, it must be stressed once again that this rule sets a *due diligence obligation*¹⁷⁹. Therefore, the flag State is not *per se* responsible for the shipmaster's conducts in breach of his/her international duties¹⁸⁰. In few words, the fact that the he/she fails to provide a proper assistance does not necessarily imply that the flag State has violated art. 98,1 of UNCLOS¹⁸¹. Clearly, if this conduct is caused by the lack of effective control on the level of seaworthiness of the assisting ship, this could give rise to the international

¹⁷⁶ UNCLOS, article 94,4 (emphasis added).

¹⁷⁷ PAPASTAVIDRIS E., *The European Convention of Human Rights and Migration at Sea*, cit., p. 431: «Accordingly, Article 98(1) LOSC, in conjunction with Article 94 LOSC, which sets out in a non-exhaustive manner the duties of the flag States, involves an obligation not only to adopt appropriate national rules and measures but also to exercise “a certain level of vigilance in their enforcement,” including exercising “administrative control” over relevant “public and private operators”».

¹⁷⁸ Precisely, flag State's jurisdiction is regulated by UNCLOS from its art. 91 to art. 98.

¹⁷⁹ See section 3(b) of the first chapter of this research. More in particular, see notes from 136 up to 141 of the same section.

¹⁸⁰ *The South China Sea Arbitration*, cit., para. 974; *Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission*, Advisory Opinion, cit., paras. 144-146; *Activities in the Area*, Advisory Opinion, cit., paras. 109-120.

¹⁸¹ With regard to the due diligence obligations provided by the regime of the Law of the Sea, it is interesting to report what noted by PAPANICOLOPULU I., *Due Diligence in the Law of the Sea*, cit., p. 161: «[...] while it is not considered reasonable to make a State liable for each and every violation committed by persons under its jurisdiction, it is equally not considered satisfactory to rely on mere application of the principle that the conduct of private persons or entities is not attributable for the State under international law. States thus act both as transposers of international law at domestic level, and as controllers of the activities carried out by non-state actors». Similarly, see ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 264; PAPASTAVIDRIS E., *The European Convention of Human Rights and Migration at Sea*, cit., p. 430; KONIG D., *The Elaboration of Due Diligence Obligations as a Mechanism to Ensure Compliance with International Legal Obligations by Private Actors*, in International Tribunal for the Law of the Sea (ed.), *The Contribution of the International Tribunal for the Law of the Sea to the Rule of Law: 1996-2016*, cit., p. 83-95.

responsibility of the flag State for not having fulfilled its duties. Broadly speaking, for a flag State to be responsible

«it would be sufficient that it fails to adopt measures to prevent the negative consequences, without the need to prove that this omission has actually produced harmful consequences»¹⁸².

In any case, where the shipmaster acts as an organ of the national State, or under its instruction, direction and control¹⁸³, the respective State is “directly” responsible for his/her unlawful behaviours¹⁸⁴.

Always dealing with the analysis of art. 98,1 of UNCLOS, further considerations emerge. The obligation to ensure assistance at sea imposes on flag States to repress the eventual masters’ reticent behaviours. Accordingly, if the shipmaster does not fulfill his/her duty to save persons at sea, the respective flag State shall criminalize and punish such conducts¹⁸⁵. In this respect, it has been already highlighted that this duty is aimed to «[...] enjoin States to enact the necessary legislation [...]»¹⁸⁶. This goal is reached not only through the adoption of domestic legislation concerning safety of navigation; it further requires the establishment of administrative and/or criminal sanctions against those conducts undermining the rationale of art. 98,1 of UNCLOS¹⁸⁷. This conclusion is raised in a joint lecture with art. 94,7 of UNCLOS¹⁸⁸, according to which the flag State shall conduct enquiries into maritime incidents that occurred on the high seas¹⁸⁹.

¹⁸² PAPANICOLOPULU I., *Due Diligence in the Law of the Sea*, cit., p.155.

¹⁸³ This topic has been analyzed in section 4(d)(i) of the first chapter of this research.

¹⁸⁴ In this regard, see DE VITTOR F.; STARITA M., *Distributing Responsibilities between Shipmasters and the Different States Involved in SAR Disasters*, cit.

¹⁸⁵ DE VITTOR F.; STARITA M., *Distributing Responsibilities between Shipmasters and the Different States Involved in SAR Disasters*, p. 80.

¹⁸⁶ See note 158 of the present chapter.

¹⁸⁷ DE VITTOR F.; STARITA M., *Distributing Responsibilities between Shipmasters and the Different States Involved in SAR Disasters*, p. 78: «flag States must integrate the shipmasters’ duty to render assistance in their domestic law and ensure compliance with the relevant rules».

¹⁸⁸ BARNES R., *Flag States*, cit. p. 316.

¹⁸⁹ UNCLOS, art. 94,7: «Each State shall cause an inquiry to be held by or before a suitably qualified person or persons into every marine casualty or incident of navigation on the high seas involving a ship flying its flag and causing loss of life or serious injury to nationals of another State or serious damage to ships or installations of another State or to the marine environment. The flag State and the other State shall cooperate in the conduct of any inquiry held by that other State into any such marine casualty or incident of navigation».

ii) Analysis of flag State's obligations under Human Rights Law: the protection of the right to life and the prohibition of degrading treatment

To exhaust the analysis concerning the involvement of the flag States in the protection of people in distress at sea, the present section deals with the obligations provided by the regime of Human Rights Law. Accordingly, since «the right to life is the fundamental basis for the duty to render assistance»¹⁹⁰, the proposed digression perfectly fits within the addressed topic¹⁹¹.

In the contemporary configuration of International Law, one of the cardinal roles covered by States is to grant and enforce the human rights enjoyed by individuals¹⁹². Notoriously, Human Rights Law does not oblige every States concerning the protection of every physical person, regardless of where they are located; traditionally, it is said that human rights obligations extend their scope of application following a *spatial criterion*¹⁹³. Therefore, States shall ensure the full respect of human rights of every individual placed within their territory¹⁹⁴.

¹⁹⁰ ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 206.

¹⁹¹ Precisely, as noted by prof. Zimmermann: «the notion of jurisdiction in human rights is not tantamount to the concept of jurisdiction to prescribe provided for in article 98 of the United Nations Convention on the Law of the Sea» (see *A.S. and Others v. Malta*, cit., Individual Opinion of the Committee Member Andreas Zimmermann (dissenting), para. 6). Therefore, the two normative fields, while complementary, are not the same. For a theoretical analysis about the peculiarities the concept of jurisdiction in Human Rights Law, see NOLL G., *Theorizing Jurisdiction*, cit., p. 611: «The jurisdiction of human rights law is thought to be fundamentally different than the jurisdiction of 'entitlements'. The former gives greater weight to redemption, and therewith to the future, the *telos* or end of worldly time. Jurisdiction as inter-state entitlements, by contrast, emphasizes creation, emergence, and legitimation by the creator-a creator who, at the beginning of times, endowed kings with spiritual power in the world».

¹⁹² UN Charter, art. 1.3: «The Purposes of the United Nations are: [...] to achieve international co-operation in solving international problems of an economic, social, cultural, or humanitarian character, and in promoting and encouraging respect for human rights and for fundamental freedoms for all without distinction as to race, sex, language, or religion». For a critical analysis of this evolution of International Law, see KOSKENNIEMI M., *Human Rights, Politics and Love*, Mennesker & Rettigheter, 2001, in KOSKENNIEMI M. (ed.), *The Politics of International Law*, Oxford/Portland, 2011, p. 153-168.

¹⁹³ The most relevant examples are the *International Covenant on Civil and Political Rights* (ICCPR), adopted in 1950, entered into force in 1953, art. 2.1: «Each State Party to the present Covenant undertakes to respect and to ensure to all individuals *within its territory* and subject to its jurisdiction the rights recognized in the present Covenant [...]» (emphasis added); ECHR, art. 56.2: «The Convention shall extend to the territory or territories named in the notification as from the thirtieth day after thereceipt of this notification by the Secretary General of the Council of Europe».

¹⁹⁴ In this regard, see VANDENHOLE W.; VAN GENUNGTEN W., *Introduction: an Emerging Multi-Duty-Bearer Human Rights Regime*, in VANDENHOLE W. (ed.), *Challenging Territoriality in Human Rights Law*, New York, 2017, p. 1: «Traditionally, human rights law has a strong territorial bias. Human rights obligations are in principle incumbent on the territorial State, ie the State on the territory of which a human rights violation takes place». In ECoHR's jurisprudence, see *Al-Skeini and Others v. United Kingdom*, Judgement of 7 July 2011, (App. No. 55721/07), para. 131: «Jurisdiction is presumed to be exercised normally throughout the State's territory».

Actually, this does not exclude that in some occasions States are responsible for the protection of human rights even beyond their national borders; when they enjoy *de iure* or *de facto*¹⁹⁵ jurisdiction over certain persons and/or activities¹⁹⁶, indeed, States are nonetheless called to ensure the respect of human rights (*i.e. extra-territorial jurisdiction*)¹⁹⁷.

As it was in-depth analyzed in chapter II¹⁹⁸, when performing navigation, «[a] ship is jurisdictionally connected with a State»¹⁹⁹. Therefore, this jurisdictional nexus – properly conferred by «legal rules»²⁰⁰ (Part VII of UNCLOS) – configures a regime of *de jure* jurisdiction²⁰¹. Accordingly, the ECoHR has recognized that:

¹⁹⁵ The distinction and the classification of *de iure* and *de facto* jurisdiction have been addressed by many scholars and in many judicial decisions. In scholarship, see PAPANICOLOPULU I., *International Law and the Protection of People at Sea*, cit., p. 118-121; MILANOVIC M., *Extraterritorial Application of Human Rights Treaties*, Oxford, 2011; COOMANS F.; KAMMINGA M.T. (eds.), *Extraterritorial Application of Human Rights Treaties*, Oxford, 2004; SHELTON D., *The Boundaries of Human Rights Jurisdiction in Europe*, Duke Journal of Comparative & International Law, 2003, p. 95-154. Dealing with judicial decisions, then, see the ECoHR judgements *Hirsi Jamaa and Others v. Italy*, cit.; *Medvedyev and Others v. France*, cit.; *Al-Saloon v. the United Kingdom*, Judgement of 30 June 2009, (App. No. 61498/08); *Ilaşcu and Others v. The Republic of Moldova and Russia*, Judgement of 8 July 2004, (App. No. 48787/99); *Drozdz and Janousek v. France and Spain*, Judgement of 26 June 1992, (App. no. 240). Again see the advisory opinion of the IACHR, requested by the Republic Of Colombia of November 15, 2017, (23/17).

¹⁹⁶ Precisely, art. 2,1 of ICCPR states that: «Each State Party to the present Covenant undertakes to respect and to ensure to all individuals within its territory and *subject to its jurisdiction* the rights recognized in the present Covenant [...]». The hendiadys of the territorial and jurisdictional requirements are commonly read as alternative and not cumulative (among others, see MILANOVIC M., *Extraterritorial Application of Human Rights Treaties*, cit.). Furthermore, see ECHR, art. 1: «The High Contracting Parties shall secure to everyone *within their jurisdiction* the rights and freedoms defined in Section I of this Convention» (emphasis added). Again, see American Convention on Human Rights (ACHR), adopted in 1969, entered into force in 1978, art. 1,1: «1. The States Parties to this Convention undertaketo respect the rights and freedoms recognized herein and to ensure to all persons subject to their jurisdiction the free and full exercise of those rights and freedoms [...]»; Arab Charter on Human Rights (ACHR), signed in 2004, entered in to force in 2008, art. 3,1: « Each State party to the present Charter undertakes to ensure to all individuals *subject to its jurisdiction* [...]» (emphasis added).

¹⁹⁷ In the field of extra-territorial application of human rights, the ECoHR, after a restrictive approach adopted in the *Bankovic* case, cit., opted for a more extensive approach. The leading case in this respect nowadays is *Al-Skeini and Others v. United Kingdom*, cit.. In scholarship, among many others, seeVEZZANI S., *Considerazioni sulla giurisdizione extraterritoriale ai sensi dei trattati sui diritti umani*, Rivista di Diritto Internazionale, 2018, p. 1086-1135; VANDENHOLE W. (ed.), *Challenging Territoriality in Human Rights Law*, cit.

¹⁹⁸ See section 2(b) of the second chapter of the present research.

¹⁹⁹ O'CONNELL D. P., *The International Law of the Sea*, cit., p. 751.

²⁰⁰ Accordingly, prof. Papanicolopulu defines *de iure* jurisdiction as: «the power, conferred upon a State by a legal rule, to legislate and enforce laws, and to adjudicate legal disputes» (PAPANICOLOPULU I., *International Law and the Protection of People at Sea*, cit., p. 120).

²⁰¹ In the author's view, this interpretation is coherent with the functioning of the regime of flag State jurisdiction. In this regard, the author fully agrees with what affirmed by Vezzani S., *Considerazioni sulla giurisdizione extraterritoriale ai sensi dei trattati sui diritti umani*, cit., p. 1101: «lo Stato di bandiera è legittimato dal diritto internazionale a regolare le attività a bordo della nave (giurisdizione legislativa), nonché a esercitare la giurisdizione giudiziaria e quella coercitiva (se non a bordo, nel momento rilevante, quando la nave venga abbordata da una nave da guerra battente la bandiera dello

«instances of the extraterritorial exercise of jurisdiction by a State to include cases involving the activities on board of ships registered in, or flying the flag of, that State»²⁰².

Therefore, it is here sustained that the scope of application of human rights provisions further extends to every circumstance related to flag State jurisdiction²⁰³; put differently, due to the jurisdictional connection bonding the State and the ships flying its flag, the former is obliged to ensure the respect of human rights of every person involved in the activities performed by national vessels²⁰⁴.

With specific regard to the *right to life*²⁰⁵, whose protection, as said before, is the “pulsing heart” of the legal framework on providing assistance at sea, this conclusion has been recently recognized by the Human Rights Committee, according to which:

«States parties are also required to respect and protect the lives of all individuals located on marine vessels and aircraft registered by them or flying their flag [...]»²⁰⁶.

Consistently, States are responsible to protect the life of people found in distress at sea by a vessel flying their flag²⁰⁷. In this respect, States must not only refrain from

stesso Stato, o quando faccia rientro in porto). Considerata la funzione sistemica svolta dallo Stato di bandiera nel garantire il rispetto del diritto internazionale sulle navi, onde evitare un vuoto di tutela, sembra ragionevole ritenere che uno Stato debba assicurare l'osservanza dei diritti umani a bordo di tutte le navi battenti la propria bandiera, in particolare adottando misure punitive contro gli abusi ivi perpetrati garantendo alle vittime adeguati rimedi giurisdizionali». More recently, a similar position has been acknowledged by ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 198; DE VITTOR F.; STARITA M., *Distributing Responsibilities between Shipmasters and the Different States Involved in SAR Disasters*, cit., p. 93; TREVISANUT S., *Recognizing the Right to be Rescued at Sea*, cit.

²⁰² *Bakanova v. Lithuania*, Judgement of 31 May 2016, (App. No. 11167/12), para. 63.

²⁰³ VEZZANI S., *Considerazioni sulla giurisdizione extraterritoriale ai sensi dei trattati sui diritti umani*, cit., p. 1097; 1099-1100.

²⁰⁴ In this sense, see the ECHR jurisprudence. Precisely, we refer to the *Öcalan v. Turkey*, Judgement of 12 May 2005, (app. No. 46221/99), para. 91; *Sánchez Ramírez v. France*, Judgement of 24 June 1996, (App. No. 28780/95); *Freda v. Italy*, Judgement of 7 October 1980, (App. No. 8916/80), paras. 1-2.

²⁰⁵ In customary international law, this fundamental duty is enshrined in the *Universal Declaration on Human Rights* (UDHR), 1948 art. 3. In conventional law, the right to life is provided in ICCPR, art. 6; ECHR, art. 2; ACHR, art. 4; *African Charter on Human and Peoples' Rights* (ACHPR), signed in 1981, entered into force in 1986, art. 4. For a doctrinal analysis on this human right and its protection, see TOMUSCHAT C.; LAGRANGE E.; OETER S. (eds.), *The Right to Life*, Leiden, 2010.

²⁰⁶ *A.S. and Others v. Malta*, cit., para. 6.5.

²⁰⁷ HRC, *General Comment No. 36 (2018) on article 6 of the International Covenant on Civil and Political Rights, on the right to life*, 2018, para. 63: «States parties are also required to respect and protect the lives of all individuals located on marine vessels or aircrafts registered by them or flying their flag, and of those individuals who find themselves in a situation of distress at sea, in accordance with their international obligations on rescue at sea».

performing activities that attempt the life of individuals (negative obligations); furthermore, they have to:

«[...] take appropriate steps to safeguard the lives of those within [their] jurisdiction»²⁰⁸.

The study of human rights *positive obligations in the protection of human life* has been in-depth analyzed both by scholars²⁰⁹ and international tribunals²¹⁰. According to them, every State is called to predispose legislative measures aimed at ensuring that the life of people under its jurisdiction is efficiently protected. Moreover, States hold the “procedural” obligation:

«to carry out an effective investigation into alleged breaches of its substantive limb»²¹¹.

Observing these duties with limited concern to the field of assistance at sea, it derives that: (1) flag States are obliged to ensure that people in distress must be

²⁰⁸ ECHR, art. 2.1. It is important to remark that not only the ECHR provides positive obligations to the right to life. Accordingly, even ICCPR and the *International Covenant on Social and Cultural Rights* (ICESCR) are to be interpreted in the sense that they impose States not only to refrain from the deprivation of human’s life, but also to protect and defend the life of people under their jurisdiction. This interpretation has been affirmed by the international jurisprudence on many occasions. Among others, see HRC, *A.S. and Others v. Italy*, cit., para. 8.3; *Baboeram and Others v. Suriname*, Decision of 4 April 1985, N. 146/1983 and 148-154/1983; Inter-American Court of Human Rights (IACHR), *Velásquez Rodríguez v. Honduras*, Judgment, 29 July 1988.

²⁰⁹ Among many others, see PAPASTAVRIDIS E., *The European Convention of Human Rights and Migration at Sea*, cit. p. 431-432; PIOTROWICZ R., *States' Obligations under Human Rights Law towards Victims of Trafficking in Human Beings: Positive Developments in Positive Obligations*, *International Journal of Refugee Law*, 2012, p. 181-201; SICILIANOS, L., *Preventing Violations of the Right to Life: Positive Obligations under Article of the ECHR*, *Cyprus Human Rights Law Review*, 2014, p. 117-129; XENOS D., *The Positive Obligations of the State under the European Convention on Human Rights*, New York, 2012; MILANOVIC M., *Al-Skeini and Al-Jedda in Strasbourg*, *European Journal of International Law*, 2012, p. 121-139.

²¹⁰ In particular, see ECHR jurisprudence *Osman v. United Kingdom*, Judgement of 28 October 1998, (App. N. 87/1997/871/1083). Before this leading case, the ECHR already analyzed this issue in *McCann and Others v. United Kingdom*, Judgement of 27 September 1995, (App. No. 18984/91). After “Osman”, among many others, see *Leray and Others v. France*, Judgement of 16 January 2001, (App. No. 44617/98); *Berü v Turkey*, Judgement of 11 January 2011, (App. No. 47304/07); *Keller v. Russia*, Judgement of 17 October 2013, (App. No. 26824/04) and *Fanzyeva v. Russia*, Judgement of 18 June 2015, (app. No. 41675/08). For an authentic and outstanding analysis of this jurisprudence (with particular regard to the right to life), see ECHR, *Guide on Article 2 of the European Convention on Human Rights*, first edition, 2018.

²¹¹ ECHR, *Guide on Article 2 of the European Convention on Human Rights*, cit., p. 6.

saved²¹²; (2) they have to investigate, and, eventually, (3) punish those actions in breach of the right to life of threatened people²¹³.

Intuitively, the effective fulfillment of these duties largely depends on the conducts performed by the master: for this reason, flag States' initiatives in ensuring the respect of the right to life shall be primarily finalized to control the master's performance of his/her international duty to assist persons in distress at sea²¹⁴.

Continuing the analysis on flag States' human rights duties of assistance, similar reflections may be advanced about the *prohibition of degrading treatment*²¹⁵. The scope of this human right (established by treaty²¹⁶ and customary law²¹⁷) further enlarges the flag State's involvement in the protection of people in distress at sea. As noted above²¹⁸, indeed, the concept of "assistance" is not limited to the protection of the life of persons at sea; most widely, it further comprehends their "human" treatment once embarked them on board. Then, analogously to the duty of the shipmaster to protect the "humanity" of rescued persons²¹⁹, even flag States must ensure that human rights are concretely respected on board their national vessels²²⁰. Accordingly:

«The flag State should take appropriate measures under its domestic laws to deter the commission of degrading treatment of rescuees»²²¹.

²¹² This specific aspect of the protection of the right to life with regard to on board activities has been addressed by the ECHR in the *Bakanova v. Lithuania*, cit., paras. 3 and 6.

²¹³ PAPANICOLOPULU I., *The duty to rescue at sea, in peacetime and in war: A general overview*, cit., p. 511.

²¹⁴ ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 208-210; PAPANICOLOPULU I., *The duty to rescue at sea, in peacetime and in war: A general overview*, cit., p. 512.

²¹⁵ *Tyrer v. United Kingdom*, cit.

²¹⁶ ICCPR, art 7; ACHPR, art 5; ACHR, art 3. This human right is holistically regulated by the European Convention for the Prevention of Torture and Inhuman or Degrading Treatment or Punishment, signed in 1987, entered into force in 1989; and the Inter-American Convention to Prevent and Punish Torture, signed in 1985, entered into force in 1987.

²¹⁷ See the Universal Declaration on Human Rights, art. 5: «No one shall be subjected to torture or to cruel, inhuman or degrading treatment or punishment». The customary nature of the rule under study has been authoritatively affirmed by the ICJ in the *Ahmadou Sadio Diallo* (Republic of Guinea v. Democratic Republic of the Congo), Judgement, I.C.J. Reports, 2010, para. 87. In doctrine, among others, see GREER S., *Is the Prohibition against Torture, Cruel, Inhuman and Degrading Treatment Really Absolute in International Human Rights Law*, Human Rights Law Review 2015, p. 108.

²¹⁸ See section 2(b)(iii) of the present chapter.

²¹⁹ As we already pointed out, the performance of rescuing activities imposes on masters not only to embark persons found at sea, but also to treat them humanely and to disembark them in a place of safety. See note 118 of this chapter.

²²⁰ ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 221-223.

²²¹ *Ibid.*, p. 222.

Even in this regard, flag States are required to investigate whether the masters have exposed the rescued people to inhuman treatment and, eventually, to punish them.

Conclusively, it must be stressed that Human Rights Law poses upon flag States due diligence obligations²²². Therefore, the eventual inhuman treatment performed by the master does not automatically give rise to the international responsibility of the flag State: the latter would be in breach of its legal duties when the master's unlawful conduct was caused by the lack of attention and control of the flag State itself, or when the master acted as an organ or under the instructions, directions and control of that State²²³.

d) International duties of the coastal State

Summarizing what has been until now observed, the life of people in distress at sea is primarily protected by the shipmasters. Beyond this “solidaristic” duty, then, even flag States are involved: in few words, the Law of the Sea and Human Rights Law pose upon States due diligence obligations to ensure that the masters of their national ships comply with International Law. In order to exhaust the present analysis, a last normative block shall be analyzed, namely the international provisions obliging the *coastal States* in the performance of *search and rescue* (SAR) operations²²⁴.

Compared to the already reported rules, this field of law has a more recent history; its “origins” lie in the drafting of the Convention on the High Seas²²⁵ and in the first version of the SAR Convention (1979), in response to the sharp increase of mixed maritime migration flows, occurring in particular in south-Asian waters²²⁶. In the same

²²² See section 2(c)(II) of the present chapter.

²²³ See section 4(d)(i) of the first chapter of this research.

²²⁴ PAPANICOLOPULU I., *Le operazioni di search and rescue: problemi e lacune del diritto internazionale*, cit., p. 508: «l'obbligo di salvare la vita umana in mare include due componenti: l'obbligo di prestare soccorso, che incombe sugli stati di bandiera e sui comandanti, e l'obbligo di operare sistemi di ricerca e soccorso, *search and rescue* nella terminologia inglese generalmente utilizzata, che incombe sugli stati costieri».

²²⁵ Convention on the High Seas, art. 12,2.

²²⁶ NERI K., *The Challenges Faced by Private Ships in Large-scale Rescue Operations at Sea*, cit., p. 96-97; TREVISANUT S., *Search and Rescue Operations in the Mediterranean: Factor of Cooperation or Conflict*, cit., p. 527; GOODWIN-GILL G.S., *Refugees and Responsibility in the Twenty-First Century*:

historical period, then, even the UNCLOS has dedicated a specific provision in this respect²²⁷.

The drafting of these rules was driven by the growing relevance played by the coastal States in the governance of the oceans²²⁸. Broadly speaking, States have started adopting treaty rules obliging themselves not to “leave alone” private vessels in this respect²²⁹.

The next pages will deal with the presented normative field. More in detail, the following part will analyze Law of the Sea obligations of assistance, while section 2(d)(ii) will analyze human rights duties pending upon the coastal States to protect the life of people in distress at sea. Finally, section 2(d)(iii) will address the delicate and cross-cutting issue concerning the disembarkation of rescued people into a “place of safety” (POS).

Before beginning with the proposed analysis, a further clarification is necessary. This author is aware that the process of disembarkation into a POS has been in-depth analyzed by scholars in the last few years²³⁰; to some extents, this issue has polarized

More Lessons Learned from the South Pacific, Immigration and Nationality Law Review, 2003, p. 323-350.

²²⁷ UNCLOS, art. 98,2.

²²⁸ In this regard, see the IMO website: «Although the obligation of ships to go to the assistance of vessels in distress was enshrined both in tradition and in international treaties [...], there was, until the adoption of the SAR Convention, no international system covering search and rescue operations» (see the online page <https://www.imo.org/en/OurWork/Safety/Pages/SARConvention.aspx>). In scholarship, see BUTTON R., *International Law and Search and Rescue*, cit., p. 26.

²²⁹ SAR Convention, Preamble: «NOTING the great importance attached in several conventions to the rendering of assistance to persons in distress at sea and to the establishment by every coastal State of adequate and effective arrangements for coast watching and for search and rescue services, HAVING CONSIDERED Recommendation 40 adopted by the International Conference on Safety of Life at Sea, 1960, which recognizes the desirability of co-ordinating activities regarding safety on and over the sea among a number of intergovernmental organizations, DESIRING to develop and promote these activities by establishing an international maritime search and rescue plan responsible to the needs of maritime traffic for the rescue of persons in distress at sea, WISHING to promote co-operation among search and rescue organizations around the world and among those participating in search and rescue operations at sea [...]».

²³⁰ Among many others, see DEL GUERCIO A., *Migrazioni via mare, luogo di sbarco sicuro e principio di non refoulement*, in BEVILACQUA G. (ed.), *Sicurezza umana negli spazi navigabili: sfide comuni e nuove tendenze*, Napoli, 2021, p. 33-48; DANISI C., *La nozione di « place of safety » e l'applicazione di garanzie procedurali e tutela dell'individuo soccorso in mare*, Rivista di Diritto Internazionale, 2021, p. 395-440; ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 122-124; TURRINI P., *Between a « Go back » and Hard (to Find) Place (of Safety): on the Rules and Standards of Disembarkation of People Rescued at Sea*, Italian Yearbook of International Law, 2018, p. 29-46; DE VITTOR F.; STARITA M., *Distributing Responsibilities between Shipmasters and the Different States Involved in SAR Disasters*, cit., p. 91; PAPANICOLOPULU I., *Le operazioni di search and rescue: problemi e lacune del diritto internazionale*, cit., p. 517-519; BUTTON R., *International Law and Search and Rescue*, cit.; RATCHOVIC M., *The Concept of 'Place of Safety'*, cit.; SCOVAZZI T., *Human Rights and Immigration at Sea*, cit., p. 229-234. Furthermore, the IMO itself

the legal debate on the rules on providing assistance at sea in the current age. For this reason, section 2(d) will address this topic, even if it does not give rise to particular legal concerns regarding the use of MASS, as it will be later observed²³¹. In any case, the following pages will deal with this *excursus* for sake of completeness, in order to provide a complete panoramic about the international legal framework on assistance at sea.

i) Analysis of coastal State's obligations under the Law of the Sea

Art. 12 of the Convention on the High Seas adds a further obligation to what was previously codified in the ILC Articles Concerning the Law of the Sea²³². Precisely, its second paragraph provides that:

«Every coastal State shall promote the establishment, operation and maintenance of an adequate and effective search and rescue service regarding safety on and over the sea and, where circumstances so require, by way of mutual regional arrangements cooperate with neighbouring States for this purpose».

Years later, the same wordings have been included in the final draft of the art. 98,2 of UNCLOS. This provision imposes on the coastal States to configure and maintain search and rescue services, and to cooperate with neighboring States in order to ensure functional global governance in this respect²³³.

addressed this topic in the *Guidelines on the Treatment of Persons Rescued at Sea*, cit., p. 8; CALIGIURI A., *Le operazioni di contrasto dell'immigrazione clandestina alle frontiere marittime dell'Unione europea e la tutela dei richiedenti asilo*, in CALIGIURI A.; CATALDI G.; NAPOLETANO N. (eds.), *La tutela dei diritti umani in Europa. Tra sovranità statale e ordinamenti sovranazionali*, cit.

²³¹ As it is will be outlined in section 3(d)(iii) of the present chapter.

²³² The text of art. 12,2 of the HS Convention was proposed by a Danish amendment (A/CONF.13/C.2/L.36), widely accepted by the States participating in the preparatory works of the treaty. To more in this regard, see United Nations Conference on the Law of the Sea, Official Records, Vol. IV, Second Committee, 24 February – 27 April 1958, A/CONF.13/40.

²³³ ZAMUNER E., *Search and Rescue of Migrants in the Mediterranean Sea between Public Responsibility and Private Engagement: an International and EU Law Perspective*, cit., p. 962; PAPANICOLOPULU I., *The duty to rescue at sea, in peacetime and in war: A general overview*, cit., p. 498.

Going deeper into the proposed analysis, the generic duties of conduct codified by the UNCLOS and by the Convention on the High Seas are further specified by the SOLAS Convention, pursuant to which:

«Each Contracting Government undertakes to ensure that necessary arrangements are made for distress communication and co-ordination in their area of responsibility and for the rescue of persons in distress at sea around their coasts. These arrangements shall include the establishment, operation and maintenance of such search and rescue facilities as are deemed practicable and necessary, having regard to the density of the seagoing traffic and the navigational dangers and shall, so far as possible, provide adequate means of locating and rescuing such persons»²³⁴.

The addressed legal framework is systematized by the provisions provided in the SAR Convention. The IMO treaty, the main purpose of which is to «[...] promote co-operation among search and rescue organizations around the world and among those participating in search and rescue operations at sea»²³⁵, defines its scope of application by delimiting the meaning to give to the “SAR activities”. Accordingly, “search” is to be intended as:

²³⁴ SOLAS, reg. V/7.1. Other provisions deal with coastal States’ involvement in assisting persons at sea. Among others, see reg. V/33.1-1: «Contracting Governments shall co-ordinate and co-operate to ensure that masters of ships providing assistance by embarking persons in distress at sea are released from their obligations with minimum further deviation from the ships. intended voyage, provided that releasing the master of the ship from the obligations under the current regulation does not further endanger the safety of life at sea. The Contracting Government responsible for the search and rescue region in which such assistance is rendered shall exercise primary responsibility for ensuring such co-ordination and co-operation occurs, so that survivors assisted are disembarked from the assisting ship and delivered to a place of safety, taking into account the particular circumstances of the case and guidelines developed by the Organization. In these cases the relevant Contracting Governments shall arrange for such disembarkation to be effected as soon as reasonably practicable» (inserted through an amendment procedure of 2004, in compliance to the revision of the SAR Convention occurring in the same year). Again, see reg. V/7: «1. Each Contracting Government undertakes to ensure that necessary arrangements are made for distress communication and co-ordination in their area of responsibility and for the rescue of persons in distress at sea around its coasts. These arrangements shall include the establishment, operation and maintenance of such search and rescue facilities as are deemed practicable and necessary, having regard to the density of the seagoing traffic and the navigational dangers and shall, so far as possible, provide adequate means of locating and rescuing such persons. 2. Each Contracting Government undertakes to make available information to the Organization concerning its existing search and rescue facilities and the plans for changes therein, if any. 3 Passenger ships to which chapter I applies shall have on board a plan for co-operation with appropriate search and rescue services in event of an emergency. The plan shall be developed in cooperation between the ship, the company, as defined in regulation IX/1 and the search and rescue services. The plan shall include provisions for periodic exercises to be undertaken to test its effectiveness. The plan shall be developed based on the guidelines developed by the Organization».

²³⁵ SAR Convention, Preamble.

«An operation, normally co-ordinated by a rescue coordination centre or rescue sub-centre, using available personnel and facilities to locate persons in distress»²³⁶.

Specularly, “rescue” is defined as:

«An operation to retrieve persons in distress, provide for their initial medical or other needs, and deliver them to a place of safety»²³⁷.

Once clarified this, the SAR Convention requires States parties to implement their national SAR systems through the configuration of *rescue coordination centers* and *rescue sub-centers*²³⁸; this mechanism is finalized to build an effective regime of cooperation between the multiplicity of actors involved in SAR operations, from the people in distress at sea to the “Search and rescue facilities”²³⁹, from the SAR State to the neighboring ones.

Since the extension of the marine domain is so vast to make it unreasonable for a State to perform SAR operations on every portion of the seas, the SAR Convention divides the world’s oceans in many SAR areas²⁴⁰, where coastal States, individually or in cooperation with other States, shall:

«ensure that sufficient *search and rescue regions* [hereinafter SAR regions] are established within each sea [...]. Such regions should be contiguous and, as far as practicable, not overlap»²⁴¹.

The establishment of the *SAR regions* has a pivotal relevance for the functioning of the treaty: this geographical repartition allows to establish an effective international mechanism for the protection of human life at sea²⁴².

²³⁶ SAR Convention, art. 1.3.1.

²³⁷ SAR Convention, art. 1.3.2.

²³⁸ SAR Convention 2.1.2. In scholarship, see BUTTON R., *International Law and Search and Rescue*, cit., p. 28.

²³⁹ This term is defined by SAR Convention 1.3.7: «Any mobile resource, including designated search and rescue units, used to conduct search and rescue operations». Intuitively, within this definition there are all masters performing their duties of assistance.

²⁴⁰ Precisely, IMO divided the world’s oceans into thirteen SAR areas.

²⁴¹ SAR Convention, art. 2.1.3 (emphasis added).

²⁴² Ibid.

Within the Law of the Sea, the legal status of the SAR regions is highly peculiar. Precisely, these portions of the seas do not reflect an extension of coastal State jurisdiction, but merely:

«a geographic area in which the coastal state accepts responsibility to coordinate SAR operations»²⁴³.

Unlike the properly called “marine zones”, SAR regions do not extend the *territorial sovereignty* nor attribute *sovereign rights* in charge of the respective coastal State²⁴⁴. More limitedly, *the SAR States assume the duty to coordinate SAR operations occurring within those specific portions of the seas*²⁴⁵, which may comprehend waters included in the territorial sea, the contiguous zone, the exclusive economic zone and the high seas. This is because the delimitation of the SAR regions is no way related to the configuration of the jurisdictional balance over the activity of navigation²⁴⁶.

Moreover, the peculiar nature of the SAR regions is testified by a further feature (whose relevance is sometimes underestimated, at least by media): since the coastal States merely undertake the responsibility to *coordinate*²⁴⁷ SAR activities into their SAR region, the other States are not exonerated from their duties of assistance established by the Law of the Sea and Human Rights Law. Put differently, the creation of a SAR region does not cause the exclusive assumption of responsibility in charge of the respective coastal State: within these waters, every involved State shall act under the coordination of the SAR State in order to assist people in distress at sea²⁴⁸. Accordingly, the current version²⁴⁹ of art. 3.1.9 of the SAR Convention declares that:

²⁴³ BUTTON R., *International Law and Search and Rescue*, cit., p. 30.

²⁴⁴ ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 59; PAPANICOLOPULU I., *Le operazioni di search and rescue: problemi e lacune del diritto internazionale*, cit., p. 513.

²⁴⁵ JIMENEZ GARCIA-CARRIAZO A., *Small Island, Big Issue: Malta and Its Search and Rescue Region - SAR*, *Journal of International Law and International Relations*, 2019, p. 301.

²⁴⁶ SAR Convention, art. 2.1.7: «The delimitation of search and rescue regions is not related to and shall not prejudice the delimitation of any boundary between States».

²⁴⁷ From a theoretical perspective, with regard to the regulatory content of international rules of cooperation, see WOLFRUM R., *International Law of Cooperation*, in *Max Planck Encyclopedia of Public International Law*, 2010.

²⁴⁸ As a demonstration of this, it is quite common that neighboring coastal States redact bilateral memorandum of understanding among them in order to coordinate rescue operations within their respective SAR regions. To more in this regard, see JIMENEZ GARCIA-CARRIAZO A., *Small Island, Big Issue: Malta and Its Search and Rescue Region - SAR*, cit., p. 314-318; PAPANICOLOPULU I., *The duty to rescue at sea, in peacetime and in war: A general overview*, cit., p. 494; TREVISANUT S., *Search and*

«[...] The Party responsible for the search and rescue region in which such assistance is rendered shall exercise *primary responsibility* for ensuring such co-ordination and co-operation occurs, so that survivors assisted are disembarked from the assisting ship and delivered to a place of safety, taking into account the particular circumstances of the case and guidelines developed by the Organisation. In these cases, the relevant Parties *shall arrange* for such disembarkation to be effective as soon as reasonably practicable»²⁵⁰.

Through the reading of this provision, it emerges that the cooperation among States mainly deals with the last step of the composite activity of rescue, *i.e.* the disembarkation of assisted people into a *place of safety*²⁵¹. The complexities of this issue have been largely debated in the last few years. According to several scholars²⁵², the identification of the place of safety is a delicate process involving – at least – three “cardinal” principles of International Law: the territorial sovereignty of the State where to disembark (1), the protection of the human rights of the people rescued at sea (2) and the principle of *non refoulment* (3)²⁵³.

Methodologically wise, it seems more effective to address this topic following a *holistic* approach²⁵⁴, contextually taking into account all the legal aspects involved. For this reason, this analysis is postponed in section 2(d)(iii) of the present chapter, once

Rescue Operations in the Mediterranean: Factor of Cooperation or Conflict, cit., p. 528; In addition, the permanence of the duty of cooperation is even more confirmed by the IMO, *Guidelines on the Treatment of Persons Rescued at Sea*, cit., p. 7: «Governments and the responsible RCC should make every effort to minimize the time survivors remain aboard the assisting ship».

²⁴⁹ As widely known, the SAR Convention (and even Chapter V of the SOLAS) has been intensively modified in 2004 by an amendment procedure redacted under the supervision of the MSC. The new version of the treaty entered into force in 2006.

²⁵⁰ Emphasis added.

²⁵¹ See note 118 of the present chapter.

²⁵² See note 230 of this chapter.

²⁵³ PAPANICOLOPULU I., *Le operazioni di search and rescue: problemi e lacune del diritto internazionale*, cit., p. 518.

²⁵⁴ In this regard, it is useful to report what affirmed by RATCHOVIC M., *The Concept of 'Place of Safety'*, cit., p.129: «At first sight, the complexities of the international disembarkation rules and the concept of place of safety appear as a typical example of legal problems related to regime interaction and fragmentation of international law. However, from a legal-analytical perspective, the complexities are primarily linked to treaty interpretation. Various rules require consideration in the interpretation and application of the concept of place of safety. The key challenge is to grasp and apply the techniques provided by the rules on interpretation of treaties. The complexities may thus not arise from lack of normative content, but rather from overload of objectives that require consideration in the interpretation. The challenge is to interpret the disembarkation rules in the wider context of international law».

provided a panoramic on the coastal States' duties of assistance established by the regime of Human Rights Law²⁵⁵.

ii) Analysis of coastal State's obligations under Human Rights law

Every State must ensure the respect of the human rights to every person posed under its jurisdiction²⁵⁶. Therefore, the *coastal State shall comply with human rights obligations about everything taking place within its territorial waters*; since it enjoys (territorial) jurisdiction into this portion of the seas²⁵⁷, it surely holds the specular duty to protect the fundamental rights of every individual placed within this geographical area²⁵⁸.

Applying this conclusion to the approached topic, it derives that the coastal State is called to protect the lives of people facing a situation of distress within its territorial waters; moreover, it must ensure that they are treated humanely, in compliance with what is established by the international regime of Human Rights Law²⁵⁹.

Analogously to what was observed in section 2(c)(iii), the performance of coastal States' duties depends on the concrete actions realized by the shipmasters (more technically, by the «SAR units»²⁶⁰ and the «SAR facilities»²⁶¹). For this reason, the coastal States are called to control and support masters' behaviours in assisting people in distress at sea occurring within the territorial waters. Furthermore, coastal States have to investigate and, eventually, punish the conducts in breach of the right to life and the prohibition of degrading treatment²⁶².

To complete the present analysis, one may wonder whether the coastal State's involvement in the protection of human rights further extends due to the role of SAR coordinator it plays in compliance with what is established by the SAR Convention.

²⁵⁵ See section 2(d)(ii) of the present chapter.

²⁵⁶ See section 2(c)(ii) of the present chapter.

²⁵⁷ JESSUP P., *The Law of Territorial Waters and Maritime Jurisdiction*, New York, cit., p. 135.

²⁵⁸ See note 194 of the present chapter.

²⁵⁹ ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 211-213.

²⁶⁰ SAR Convention, art. 1.3.8: «A unit composed of trained personnel and provided with equipment suitable for the expeditious conduct of search and rescue operations».

²⁶¹ See note 239 of this chapter.

²⁶² Ibid.

Precisely, it has been previously noted that the coastal State shall coordinate rescue operations taking place within its SAR zone²⁶³. The performance of these activities may enlarge coastal State's knowledge and control over SAR operations conducted outside its territorial waters: therefore, it is asked whether these measures may extend coastal State's jurisdiction over SAR activities occurring beyond the territorial sea.

In this specific regard, it is interesting to report what has been recently affirmed by the Human Rights Committee in the *A.S. and Others v. Malta* case²⁶⁴. On that occasion, the HRC has been called to evaluate whether Malta breached art. 6 of the ICCPR (together with Italy²⁶⁵) by not rescuing a group of migrants in distress into the Maltese SAR region (placed on the high seas of the Mediterranean Sea). Recalling a previous position adopted by Committee itself²⁶⁶, the HRC affirmed that a State is surely obliged to ensure the protection of the right to life to:

«all persons over whose enjoyment of the right to life it exercises power or *effective control*. This includes persons located outside any territory effectively controlled by the State, whose right to life is nonetheless affected by its military or other activities in a direct and reasonably foreseeable manner»²⁶⁷.

Once acknowledged this, the HRC wondered if the migrants were under the *effective control* of Malta, in order to determine whether the State held a *de facto* jurisdiction over them. The Committee posed particular attention to the international obligations arising from the SAR Convention and, in particular, from the establishment of the SAR region. In this regard, it concluded that:

«it is undisputed that the vessel in distress was located in the *search and rescue area* for which the State party authorities undertook responsibility to provide for overall coordination of search and rescue operations [...]. The Committee *therefore* considers that the State party exercised effective control over the rescue operation, potentially resulting in a direct and reasonably foreseeable causal relationship between the States parties' acts and omissions and the outcome of the operation»²⁶⁸.

²⁶³ See section 2(d)(i) of this chapter.

²⁶⁴ See note 142 of the present chapter.

²⁶⁵ *A.S. and Others v. Italy*, cit.

²⁶⁶ HRC, *General Comment No. 36*, cit., para. 63 (emphasis added).

²⁶⁷ *A.S. and Others v. Malta*, cit., para. 6.5.

²⁶⁸ *A.S. and Others v. Malta*, cit., para. 6.7 (emphasis added). This position has been affirmed once again by the HRC in the twin decision *A.S. and Others v. Italy*, cit., para. 8.5: «The Committee notes that the principal responsibility for the rescue operation lies with Malta, *since the capsizing occurred in its*

According to the reasoning adopted by the HRC, it seems that the existence and the performance of the duty of coordination into the SAR region should determine an extension of coastal State jurisdiction even beyond the territorial waters; put differently, the scope of human rights obligations should comprehend what occurs within the SAR region²⁶⁹.

Albeit this interpretation is coherent with the positions expressed by previous judicial decisions²⁷⁰ and several scholars²⁷¹, this view does not meet a unanimous consensus. For example, prof. Zimmermann, in his dissenting opinion to the mentioned HRC decision, has remarked that it is important not to confuse Law of the Sea and Human Rights obligations:

«Under those conventions [UNCLOS, SOLAS and SAR conventions], Malta once again had an obligation to eventually bring those persons into its jurisdiction by taking appropriate measures to rescue them, but pending such rescue they were not yet subject to Maltese jurisdiction within the meaning of the Covenant [ICCPR]»²⁷².

search and rescue area, and since it undertook in writing responsibility for the search and rescue operation» (emphasis added).

²⁶⁹ DANISI C., *La nozione di « place of safety » e l'applicazione di garanzie procedurali e tutela dell'individuo soccorso in mare*, cit., p. 430.

²⁷⁰ ECoHR *Hirsi Jamaa and Others v. Italy*, cit., para. 74; *Ciechońska v. Poland*, Judgement of 14 June 2011, (App. No. 19776/04); *Furdik v. Slovakia*, Admissibility Decision of 2 December 2008, (App. No. 42994/05). Therefore, it is particularly interesting to observe the similarities between the HRC decision and the advisory opinion of the IACHR, requested by the Republic Of Colombia of November 15, 2017, (23/17), dealing with extra-territorial application of human rights related to the compliance with environmental obligations. Precisely, see para. 81: «“[r]egarding transboundary damage, a person is subject to the jurisdiction of the State of origin, if there is a causal connection between the incident that took place on its territory and the violation of the human rights of persons outside its territory. *The exercise of jurisdiction arises when the State of origin exercises effective control of the activities that caused the damage and consequent violations of human rights*”». For an in-depth analysis of this decision, see OLLINO A., *Reflections on the Advisory Opinion on Human Rights and the Environment and the Notion of Extraterritorial Jurisdiction*, Die Friedens-Warte, 2020, p. 56-69.

²⁷¹ Among others, see DANISI C., *La nozione di « place of safety » e l'applicazione di garanzie procedurali e tutela dell'individuo soccorso in mare*, cit., p. 429; BARNABÒ M., *Verso una sovrapposizione tra la zona SAR e giurisdizione statale?*, European Papers, 2020, p. 375-386; KOKA E.; VESHI D., *Irregular Migration by Sea: Interception and Rescue Interventions in the Light of International Law and the EU Sea Borders Regulation*, European Journal of Migration and Law, 2019, p. 51-52; ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 211-212; TREVISANUT S., *Is there a right to be rescued at sea? A constructive view*, cit., p. 9.

²⁷² *A.S. and Others v. Malta*, cit., Dissenting Opinion of Andreas Zimmermann, para. 7.

Similarly, prof. Milanovic has stressed the need to conceptualize the concept of “jurisdiction” in a distinct way depending on the legal regime of reference²⁷³. Accordingly:

«[...] the notion of jurisdiction in human rights treaties cannot depend on the parallel existence of a specialized regime and the designation of SAR areas»²⁷⁴.

In the author’s view, what has been noted by these two scholars is convincing. According to the SAR Convention, the establishment of a SAR region imposes on the respective coastal State the duty to *coordinate* SAR operations in that specific portion of the seas. Beyond that, these rules are irrelevant from a jurisdictional perspective: this is surely true for what concerns the Law of the Sea jurisdiction and, allegedly, even with regard to the regime of Human Rights Law. Accordingly, the textual reading of art. II of the SAR Convention confirms that:

«Nothing in the Convention shall prejudice the codification and development of the law of the sea by the United Nations Conference on the Law of the Sea convened pursuant to resolution 2750(XXV) of the General Assembly of the United Nations nor the present or *future claims* and legal views of any State concerning the law of the sea and the nature and extent of coastal and flag State jurisdiction»²⁷⁵.

Clearly, this conclusion does anyway not exclude that, where the coastal State *effectively* controls a specific rescuing operation²⁷⁶, it is responsible for the respect of human rights in that circumstance. This is because, in such an eventuality, the State holds *de facto* jurisdiction over people in distress at sea.

²⁷³ In this regard, see what has been affirmed by the ECoHR in *Bankovic and Others v. Belgium and Others*, judgement of 12 December 2001, (App. No. 52207/99), para. 57. In scholarship, among many others, see MILANOVIC M., *Extraterritorial Application of Human Rights Treaties*, cit.; GONDEK M., *The Reach of Human Rights in a Globalising World: Extraterritorial Application of Human Rights Treaties*, Intersentia, 2009; WILDE R., *Legal “Black Hole”? Extraterritorial State Action and International Treaty Law on Civil and Political Rights*, Michigan Journal of International Law, Vol. 23, 2005, p. 739-806.

²⁷⁴ MILANOVIC M., *Drowning Migrants, the Human Rights Committee, and Extraterritorial Human Rights Obligations*, cit.

²⁷⁵ Emphasis added.

²⁷⁶ In compliance with what was affirmed by the ICJ in the *Legal Consequences of the Construction of a Wall in the Occupied Palestinian Territory*, Advisory Opinion, I.C.J. Reports 2004, paras. 102-113. To more in this regard, we refer to the authors already mentioned in note 195 of this chapter.

However, what must be specified is that *the mere fact that rescuing activities take place within a SAR region is irrelevant for the assessment of de facto jurisdiction*²⁷⁷: notoriously, this test consists of an objective and factual analysis aimed at reconstructing the concrete *control*²⁷⁸ exercised by a State over a certain territory, an individual and/or an activity²⁷⁹. From a human rights perspective, then, the configuration of a SAR region is “jurisdictionally neutral”²⁸⁰. Within this portion of the oceans – as well as anywhere else outside national borders – States are obliged to ensure the respect of human rights when they have *de facto* jurisdiction, regardless of where the distress and SAR operations occur.

To confirm this, it must be reported that, in a “twin decision”²⁸¹, the HRC itself retained that a State (Italy) may have *de facto* jurisdiction for what concerns a SAR operation regardless of the fact that the rescue occurred *into the SAR region of another State* (Malta)²⁸².

iii) The issue of disembarkation into a “place of safety”

In order to effectively assist people in distress at sea, embarking them on board is just the very first step, to which it shall follow, sooner or later, their disembarkation on

²⁷⁷ *A.S. and Others v. Italy*, cit., dissenting opinion of prof. Zimmermann, para. 1: «[...] the mere fact that a person did find him- or herself in a SAR zone administered by a given State party of the Covenant does not bring that person within the jurisdiction of such State party for the purposes of Art. 2(1) ICCPR».

²⁷⁸ For an in-depth analysis about the conceptualization of the concept of “control”, and its difference with the concept of “power”, see OLLINO A., *Due Diligence Obligations in International Law: A Theoretical Study*, cit., chapter 2.

²⁷⁹ OLLINO A., *Reflections on the Advisory Opinion on Human Rights and the Environment and the Notion of Extraterritorial Jurisdiction*, cit.; PAPANICOLOPULU I., *International Law and the Protection of People at Sea*, cit., p. 120-122.

²⁸⁰ In favour of this view, see PAPASTAVRIDIS E., *Is there a right to be rescued at sea? A skeptical view*, PAPASTAVRIDIS E., *Is there a right to be rescued at sea? A skeptical view*, Qil Zoom-in, 2014, p. 22. For a contrary position, see TREVISANUT S., *Is there a right to be rescued at sea? A constructive view*, cit., p. 13: «the de facto control becomes also de jure when the distress situation is located within the SAR zone of the recipient state, which has an obligation to ‘promote the establishment, operation and maintenance of an adequate and effective search and rescue service’».

²⁸¹ *A.S. and Others v. Italy*, cit.

²⁸² *A.S. and Others v. Italy*, cit., para. 7.8: «[...] the Committee considers that individuals on the vessel in distress were directly affected by the decisions taken by the Italian authorities in a manner that was reasonably foreseeable in light of the relevant legal obligations of Italy, and that they were thus subject’s to Italy jurisdiction for the purposes of the Covenant [ICCPR], notwithstanding the fact that they were within the Maltese search and rescue region and thus also subject concurrently to the jurisdiction of Malta» (emphasis added).

land²⁸³. As noted above²⁸⁴, this logical conclusion is transposed into the positive legal system: the concept of “rescue operation” necessarily comprehends even this conclusive step²⁸⁵, which shall be performed into a “*Place of Safety*”.

The meaning to give to the locution “Place of Safety” (POS) is a delicate issue, whose solution is not provided by the existing “hard law”. As it is widely known, indeed, neither the UNCLOS, the SOLAS nor the SAR conventions define the POS; furthermore, they do not even establish the criteria for identifying it. In this regard, the IMO Guidelines of 2004 are of great help, since they define the POS as:

«[...] a location where rescue operations are considered to terminate. It is also a place where survivors’ safety of life is no longer threatened and where their basic human needs (such as, shelter and medical needs) can be met. Further, it is a place from which transportation arrangements can be made for the survivors’ next for destination»²⁸⁶.

As it can be inferred from the reading of the IMO Guidelines, the disembarkation of rescued people shall be performed into a place where their fundamental human rights may be fully protected; broadly speaking, the identification of the POS must follow humanitarian grounds. Accordingly, the identification of the POS is a process involving the contextual application of many regimes of International Law (from the Law of the Sea to the rules on State sovereignty, from Human Rights Law to Refugee Law²⁸⁷). Furthermore, this legal scenario is further problematized by the fact that many legal (and physical) actors shall coordinate their behaviours: broadly speaking, the masters, the flag States and the coastal States have to perform their international duties by respecting the role played by the “other” subjects. The configuration of this sort of “concentric circles-structure” highly challenges the analysis of the issue under study.

²⁸³ CALIGIURI A., *Le operazioni di contrasto dell’immigrazione clandestine alle frontiere marittime dell’Unione europea e la tutela dei richiedenti asilo*, cit., p. 382.

²⁸⁴ See section 2(b)(iii) of the present chapter.

²⁸⁵ See note 118 of the present chapter.

²⁸⁶ IMO *Guidelines on the Treatment of Persons Rescued at Sea*, cit., p. 8. For an outstanding analysis on the definition to give to the locution “Place of Safety”, see RATCHOVIC M., *The Concept of ‘Place of Safety’: Yet Another Self-Contained Maritime Rule or a Sustainable Solution to the Ever- Controversial Question of Where to Disembark Migrants Rescued at Sea?*, cit.

²⁸⁷ To more in this regard, among many others, see GIUFFRÈ M., *The Readmission of Asylum Seekers under International Law*, London, 2020; TREVISANUT S., *The Principle of Non-Refoulement and the De-Territorialization of Border Control at Sea*, *Leiden Journal of International Law*, 2014, p. 661-675; GAMMELTOFT-HANSEN T., *Access to Asylum: International Refugee Law and the Globalisation of Migration Control*, Cambridge, 2011.

To simplify the present work, this section follows a “step-by-step approach”. Starting from the moment when the master embarks the people found in distress at sea, until the conclusion of the operations of disembarkation into a POS, it is intended to provide a panoramic of the systemic interrelation occurring between this plurality of rules.

In pursuance of his/her international duties, the master of every ship shall – where possible – rescue the persons found in distress at sea. As it has been noted before²⁸⁸, his/her capability of rescuing people depends on the flag State’s compliance with the due diligence obligations codified in art. 98,1 of UNCLOS: even in this regard, then, it emerges the cross-cutting connection between the shipmaster’s and the flag State’s international duties of assistance at sea²⁸⁹.

Once embarked them on board, the master in charge of the ship must bring the rescued people into a POS. As clarified by the IMO Guidelines, the assisting ship or anyother SAR facility can be *transitorily* considered as a “safe place”.²⁹⁰ However, this *temporal* solution is limitedly functional to the conclusion of the rescuing activities, thatlogically require, sooner or later, the disembarkation of people on dry land²⁹¹.

In this phase, the master has to conform its decisions with the governmental authorities involved in the specific occasion: depending on the SAR region where the rescue takes place, he/she shall contact the RCC of the respective coastal State²⁹².

At this jointure, the SAR State has the duty to cooperate and coordinate the performance of the following SAR operations²⁹³. As explicitly remarked by the SAR Convention, the primary responsibility of the SAR State is to identify and establish the POS, in order to bring to a positive conclusion the situation of emergency faced by

²⁸⁸ See section 2(c)(I) of this chapter.

²⁸⁹ In scholarship, particular emphasis on this aspect is expressed by MUNARI F., *Migrazioni, SAR, ruolo e responsabilità delle ONG*, cit., p. 345.

²⁹⁰ IMO *Guidelines on the Treatment of Persons Rescued at Sea*, cit., p. 8.

²⁹¹ TURRINI P., *Between a « Go back » and Hard (to Find) Place (of Safety): on the Rules and Standards of Disembarkation of People Rescued at Sea*, cit., p. 45: «Although relief may be given to these people in the rescuing ship, sooner or later the time will come when treatment will be needed that can only be provided on land».

²⁹² See note from 136 to 138 of this chapter. For sake of completeness, it must be added that SAR regions may overlap, so that more than one coastal State should have the responsibility to coordinate SAR operations. For example, this circumstance occurs in certain portions of the Mediterranean Sea between the SAR regions established by the States of Libya and Malta. To more in this regard, see JIMENEZ GARCIA-CARRIAZO A., *Small Island, Big Issue: Malta and Its Search and Rescue Region - SAR*, cit.

²⁹³ SAR Convention, art. 3.1.9.

people rescued at sea²⁹⁴. In this respect, it is important to remark that the SAR State merely holds a duty of cooperation, which limitedly requires:

«to act in good faith in order to reach an agreement on matters of common interest or concern»²⁹⁵.

In this regard, two further considerations arise. First, the cooperation promoted by the SAR State could not necessarily end positively. Second, and more importantly, the Law of the Sea does not oblige the SAR State to identify a POS *within its national territory*²⁹⁶. While the IMO (merely) recommends that the SAR State *should* accept the disembarkation into its ports (in the absence of alternative solutions)²⁹⁷, no existing “hard law” rule establishes this duty.

In the current normative lack, then, some general reflections may be advanced²⁹⁸. Since a State is fully sovereign within its territory, it has the power to establish whether and how foreign people may enter or not within its national borders²⁹⁹. Notoriously, ports are placed inside the internal waters of States³⁰⁰. Therefore, in the lack of a specific provision obliging States to accept the entrance of foreigners into their ports, the disembarkation of rescued people within its territory is not imposed by International Law³⁰¹. Accordingly, it is quite accepted that the existing rules of the Law of the Sea regime do not compress the sovereignty of the SAR State³⁰².

²⁹⁴ Ibid.

²⁹⁵ SCOVAZZI T., *Human Rights and Immigration at Sea*, cit., p. 230. Historically, the ICJ analyzed the scope and content of international duties of cooperation in *North Sea Continental Shelf* cit., para. 85.

²⁹⁶ NERI K., *The Challenges Faced by Private Ships in Large-scale Rescue Operations at Sea*, cit., p. 104; NERI K., *The missing obligation to disembark persons rescued at sea*, Italian YearBook of International Law, 2019, p. 47-62; TURRINI P., *Between a « Go back » and Hard (to Find) Place (of Safety): on the Rules and Standards of Disembarkation of People Rescued at Sea*, cit., p. 45.

²⁹⁷ IMO, *Principles Relating to Administrative Procedures for Disembarking Persons Rescued at Sea*, 2009, FAL.3/CIRC.194, para.2.3.: «[i]f disembarkation from the rescuing ship cannot be arranged swiftly elsewhere, the Government responsible for the SAR area should accept the disembarkation of persons rescued».

²⁹⁸ ILC, *Fragmentation of International Law*, cit.

²⁹⁹ With specific regard to the application of principle sovereignty to the issue of the disembarkation of rescued people into a POS, see PAPANICOLOPULU I.; BAI G., *Controllo delle frontiere statali e respingimenti nel diritto internazionale e nel diritto del mare*, cit., p. 25-32

³⁰⁰ Precisely, see section 2(b) of the second chapter of this research.

³⁰¹ *Hirsi Jamaa and Others v. Italy*, cit., para. 113.

³⁰² ROSSI P.F., *Politica dei “porti chiusi” e il diritto internazionale: il caso Sea-Watch 3*, Osservatorio costituzionale, 2019, p. 22: « Il diritto internazionale, come regola generale, dà allo Stato costiero il potere di regole l’accesso ai suoi porti: in principio, dunque, nulla impedisce di “chiuderli”. Cidè fatto salvo anche dalle convenzioni SAR e SOLAS, le quali, nel disciplinare le operazioni di salvataggio

However, this does not exclude that *other* international rules, belonging to further international regimes, may play a relevant role in this respect. In the contemporary configuration of International Law, indeed, sovereignty is not an absolute concept: since States have more and more assumed the responsibility of «promoting and encouraging respect for human rights»³⁰³, States have consciously “compressed” their ultimate sovereign powers³⁰⁴. Actually, specific norms belonging to *Human Rights Law* and *Refugee Law* regimes are able to concretely erode the margin of appreciation of States in exercising their sovereign powers.

As far as human rights are concerned (1), States shall respect and protect the life of every people under their *jurisdiction*; in this occurrence, a State must do everything reasonably possible to save the life of people in distress at sea. From this perspective, then, the refusal to disembark them within its national ports (whether they can be considered a safe place) seems to collide with Human Rights Law.

In this regard, the underlying question is whether a State has jurisdiction over a certain SAR operation³⁰⁵. As it has been already observed, indeed, a State is *de iure* responsible when ships flying their flag are involved³⁰⁶, or when the emergency occurs within its territorial sea³⁰⁷. Beyond the cases, instead, if the activities are performed in a portion of the high seas (even if within a SAR region), a State has jurisdiction only if it has a *de facto* control over the SAR activities: otherwise, it is hard to assume that human rights obligations may play a relevant role in the concrete identification of the POS.

For what concerns Refugee Law (2), then, it has been already anticipated that the principle of *non refoulement* covers a pivotal relevance in this respect. Notoriously, this principle, codified by art. 33 of the *Convention relating the Status of Refugees*³⁰⁸, affirms that:

in mare, non individuano *a priori* il luogo di sbarco né affidano la scelta alla cooperazione tra Stati». On the same advice, see PAPASTAVRIDIS E., *Is there a right to be rescued at sea? A skeptical view*, cit., p. 19.

³⁰³ U.N. Charter, art. 1.3.

³⁰⁴ TANZI A., *Introduzione al diritto internazionale contemporaneo*, cit., p. 521: «L’evoluzione verso la tutela internazionale degli individui, attraverso il *corpus* dei diritti dell’uomo che perforano gli antichi limiti sovrani della *domestic jurisdiction* non sono altro che il risultato dell’esercizio della sovranità esterna degli Stati nel processo di formazione delle regole internazionali in questione».

³⁰⁵ NERI K., *The missing obligation to disembark persons rescued at sea*, cit., p. 51-55.

³⁰⁶ See section 2(c)(ii) of this chapter.

³⁰⁷ See section 2(d)(ii) of this chapter.

³⁰⁸ *Convention relating the Status of Refugees*, signed in 1951, entered into force in 1954. To date, 146 States are parties to the convention. For more information about the protection of the refugees at sea,

«No Contracting State shall expel or return (“refouler”) a refugee in any manner whatsoever to the frontiers of territories where his life or freedom would be threatened on account of his race, religion, nationality, membership of a particular social group or political opinion»³⁰⁹.

Beyond the fact that this customary principle³¹⁰ surely operates with regard to refugees³¹¹, several international lawyers agree on the fact that it also assumes a relevant role for what concerns the effective protection of human rights³¹². According to the ECoHR, for example, the *non-refoulement* principle obliges State Parties not to “push-back” people to foreign countries where they may face the «serious risk» of being subjects to torture or degrading treatments³¹³.

Intuitively, the process of identification of the POS needs to take into account the relevance of this international principle. In this regard, the *non-refoulement* rule has a twofold relevance³¹⁴. First, it precludes the possibility to define as a POS the territory of a State where rescued people could be tortured and treated in a degrading way³¹⁵. Second, if a State enjoys human rights jurisdiction over SAR operations³¹⁶, this

see VIRZO R., *Il coordinamento di norme di diritto internazionale applicabili allo status dei rifugiati e dei bambini migranti in mare*, Rivista del Diritto della Navigazione, 2013, p. 143-173.

³⁰⁹ For a recent analysis of the principle of non-refoulement and its evolution over time, among others, see MORAN C., *Strengthening the Principle of Non-Refoulement*, The International Journal of Human Rights, 2021, p. 1032-1052.

³¹⁰ In this regard, see TREVISANUT S., *The Principle of Non-Refoulement at Sea and the Effectiveness of Asylum Protection*, Max Planck Yearbook of United Nations Law, 2008, p. 215; COLEMAN N., *Non-Refoulement Revised. Renewed Review of the Status of the Principle of Non-Refoulement as Customary International Law*, European Journal of Migration and Law, 2003, p. 23-68.

³¹¹ The status of “refugee” is precisely defined by the Convention relating the Status of Refugees, art. 1 A.

³¹² This topic is in-depth analyzed by PAPANICOLOPULU I.; BAJ G., *Controllo delle frontiere statali e respingimenti nel diritto internazionale e nel diritto del mare*, cit., p. 35-39.

³¹³ *Soering v. United Kingdom*, Judgement of 7 July 1989, (App. No. 14038/88), para. 35. Similarly, see *Saadi v. Italy*, Judgement of 28 February 2008, (App. No. 37201/06), para. 127.

³¹⁴ Among others, see ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 226-231; TREVISANUT S., *The Principle of Non-Refoulement and the De-Territorialization of Border Control at Sea*, cit.

³¹⁵ ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 236-239; CALIGIURI A., *Le operazioni di contrasto dell’immigrazione clandestina alle frontiere marittime dell’Unione europea e la tutela dei richiedenti asilo*, cit., p. 382.

³¹⁶ *Hirsi Jamaa and Others v. Italy*, cit., paras. 85-91. See also HRC, *Advisory Opinion on the Extraterritorial Application of Non-Refoulement Obligations under the 1951 Convention relating to the Status of Refugees and its 1967 Protocol*, 2007, para. 24: «For the reasons set out below, UNHCR is of the view that the purpose, intent and meaning of Article 33(1) of the 1951 Convention are unambiguous and establish an obligation not to return a refugee or asylum-seeker to a country where he or she would be risk of persecution or other serious harm, which applies wherever a State exercises jurisdiction, including at the frontier, on the high seas or on the territory of another State».

principle obliges the latter not to refuse the disembarkation of rescued people within its territory, and so compressing, even more, its sovereign right to freely establish the entrance of foreigners into its ports³¹⁷.

Even in this case, therefore, the issue concerning the scope of application of human rights obligations is of outstanding relevance: broadly speaking, the international duty not to push back people in distress at sea – inferred from the applicability of the principle of *non-refoulement* – is only upon those States that hold *de iure* or *de facto* jurisdiction over them³¹⁸.

In conclusion, it must not be forgotten that the shipmasters involved in the procedures of assistance at sea shall continue to perform their duty of saving the life at sea. Specularly, this means that they constantly enjoy their “right to obey the law”³¹⁹. This also means that *shipmasters could always pretend to disembark rescued people into a POS, independently of the eventual failure of the coordination plan promoted by the SAR State*.

As it has been argued before³²⁰, indeed, it seems reasonable to infer that the master’s duty of assistance corresponds to a specular right to “have the faculty to comply with International Law”. This passage acquires a particular relevance during the process of disembarkation of rescued people into a POS: put differently, it seems that International Law always gives to the master the right/duty to conclude the operations of assistance. Therefore, as explicitly declared by the SOLAS³²¹, the States involved in SAR operations cannot hinder nor obstruct the performance of the requested conduct.

More in detail, the assisting ship has the right to enter within the territorial waters of the coastal State, in compliance with the international rules dealing with the right of innocent passage³²². Although some States have recently denied this faculty in case of

³¹⁷ PAPANICOLOPULU I.; BAJ G., *Controllo delle frontiere statali e respingimenti nel diritto internazionale e nel diritto del mare*, cit., p. 41.

³¹⁸ See note 316 of this chapter.

³¹⁹ See note 130 of this chapter.

³²⁰ See the last part of section 2(b)(iii) of this chapter.

³²¹ SOLAS, reg. V/34-1.

³²² UNCLOS, arts. 17-21. For what concerns the possibility to retain that ships may be considered as the direct recipients of international rights of navigation, we avail of the already-mentioned avant-garde position expressed in *M/V “Saiga”* cit., Separate opinion of Vice-President Wolfrum, para. 53. As noted before, this view has been acknowledged by ITLOS in *M/V “Virginia”*, cit., para. 156.

maritime migration flows³²³, the large majority of experts believe that this practice conflicts with International Law³²⁴.

More problematic, instead, is the issue concerning whether the shipmaster's right to comply with his/her duties of assistance may concretely compress the faculty of States in refusing access into their ports³²⁵. This normative conflict adds to the list of the (potential) antinomies occurring between the principle of territorial sovereignty and the protection of human rights and refugee law. Although the goal of this chapter is not to go too far into this issue, this author retains that the addition of another piece to this articulated legal puzzle is a further demonstration that, in the contemporary age, *States' sovereign discretion in this regard is sharply reducing*.

³²³ In particular, we refer to the Italian practice established by the governmental decree 53/2019, then converted in the national Law n. 77/2019. This domestic provision aims to delimit the non-innocent passage inside Italian territorial waters. To more in this regard, see ZAMPONE A., *Il c.d. «decretosicurezza-bis»: i profili di diritto della navigazione*, Diritto Pubblico, 2021, p. 693-722; PITEA C.; ZIRULIA S., "Friends, not foes": *qualificazione penalistica delle attività delle ONG di soccorso in mare alla luce del diritto internazionale e tipicità della condotta*, Quaderni di SIDIBlog, 2019, p. 74-86; ZIRULIA S., *Decreto sicurezza-bis: novità e profili critici*, Diritto Penale Contemporaneo, 2019; PAPANICOLOPULU I., *Tutela della sicurezza o violazione del diritto del mare?*, SIDIBlog, 2019.

³²⁴ In this respect, see PAPANICOLOPULU I.; BAJ G., *Controllo delle frontiere statali e respingimenti nel diritto internazionale e nel diritto del mare*, cit., p. 29-30; ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 168-172; HAKAPÄÄ K., *Innocent Passage*, Max Planck Encyclopedia of International Law, 2013, para. 6. In (partial) opposition to this view, see SCHATZ V.; FANTINATO M., *Post-rescue Innocent Passage by Non-governmental Search and Rescue Vessels in the Mediterranean*, International Journal of Marine and Coastal Law, 2020, p. 740-771; ROSSI P.F., *Politica dei "porti chiusi" e il diritto internazionale: il caso Sea-Watch 3*, cit.

³²⁵ TURRINI P., *Between a « Go back » and Hard (to Find) Place (of Safety): on the Rules and Standards of Disembarkation of People Rescued at Sea*, cit., p. 45: «Of course, no State can be forced to open its ports (apart from in the case of a ship in distress, which retains her incontestable right to put into the closest haven [...])» (emphasis added).

3. The use of MASS and their impact on the rules on assistance at sea

a) When there is no place for people on board: MASS and their capability to assist people in distress at sea

The technologies of automation and control are revolutionizing the ergonomics of navigation. In particular, the production of MASS belonging to the third and fourth levels of automation³²⁶ allows the dislocation of its subjective element, so that navigation can be fully performed from shore. This peculiarity strongly challenges the applicability of the international rules governing the human activity of navigation. Although there is still no relevant practice in this regard, it is reasonable to predict that even the legal framework on assistance at sea is going to be largely problematized by the use of MASS.

As it has been previously emphasized, assisting people in distress at sea is an intrinsic element of the maritime culture: well-conscious of the typical threats hatching inside the marine domain, *sea-men*³²⁷ have always acted to save the lives of their “colleagues” in distress³²⁸. This mission stems from ethical grounds³²⁹ and only subsequently it is transposed into law.

The rise of MASS strongly impacts the way of providing assistance measures. Accordingly, it cannot be taken for granted that the “MASS remote operators” will play the same (decisive) role traditionally covered by the properly called “sea-men”³³⁰: since the latter are not physically crossing the waters on board the ships, they are not “geographically closed” to their colleagues in distress.

³²⁶ See section 3 of the introduction to the research.

³²⁷ Even in this case, the recourse to the male term is due to its constant use by the experts. To more debate in this regard, see PAPANICOLOPULU I. (ed.), *Gender and the Law of the Sea*, cit.

³²⁸ This “horizontal” tension of rules on assistance at sea is in-depth described by MUNARI F., *Migrazioni, SAR, ruolo e responsabilità delle ONG*, cit.

³²⁹ See note 6 of this chapter.

³³⁰ it is interesting to observe (once again) that some “insiders” have coined the neologism “*e-farer*” (in particular, see *From seafarer to “e-farer”, shipping looks for the crews of tomorrow*, CyprusMail, 9 October 2019; *Is this the end of the seafarer and the rise of e-farer?*, Nor-Shipping 2021, available at <http://www.nor-shipping.com/the-rise-of-the-e-farer/>). The recourse to this new term for defining remote operators reveals, even more, the difference occurring between this new working figure compared to traditional seafarers.

Moreover, without “human hands”, unmanned MASS appears to be more limited in performing SAR operations rather than “traditional” vessels. Due to the potential absence of facilities for human accommodation, these new means of maritime transport are not usually³³¹ able to host people on board; put differently, from the very moment of their construction, MASS’ role in assisting people at sea may be quite limited³³². Undoubtedly, even unmanned ships can guarantee a certain level of assistance, such as launching S.O.S. signals or marking the location of people at sea; however, they could face serious difficulties in embarking and hosting persons on board, for the very reason that remotely controlled MASS may not be projected for carrying out such activities.

At the same time, ongoing engineering projects demonstrate how automation technology could help in the performance of «dull, dirty and dangerous»³³³ SAR operations³³⁴. Accordingly:

«Autonomous ships may also enhance maritime domain awareness and detection capability as compared to manned rescue teams, particularly in situations of reduced visibility, through advanced suites of sensor technology, including infrared radar and thermal scanners»³³⁵.

³³¹ In this regard, it is important to specify that this does not mean that MASS cannot be *necessarily* constructed without human facilities on board. Of course, this is possible. However, observing the first MASS projected in these years, they are usually conceived not to host persons on board. Furthermore, it is this research limitedly analyzes the use of unmanned cargo ships, and not unmanned cruises, which are designed for hosting passengers on board.

³³² CMI, *CMI International Working Group Position Paper on Unmanned Ships and the International Regulatory Framework*, cit., p. 6.

³³³ This common expression is constantly used to define SAR operations that pose particular risks over the Search and Rescue facility. On those occasions, the recourse to the technology of automation is particularly helpful in giving assistance to people facing an emergency. For more information on this issue, and with specific regard to the marine domain, see PEDROZO R., *US employment of marine unmanned vehicles in the South China Sea*, in LESZEK B., DO THANH HAI (eds.), *The South-China Sea. From a Regional Maritime Dispute to Geo-Strategic Competition*, London, 2019, p. 217-229.

³³⁴ In scholarship, this topic is analyzed by KLEIN N., *Maritime autonomous vehicles and international laws on boat migration: Lessons from the use of drones in the Mediterranean*, *Marine Policy*, 127, 2021; YOO J.; GOERLANDT F.; CHIRCOP A., *Unmanned Remotely Operated Search and Rescue Ships in the Canadian Arctic: Exploring the Opportunities, Risk Dimensions and Governance Implications*, cit.

³³⁵ COITO J., *Maritime Autonomous Surface Ships. New Possibilities – and Challenges – in Ocean Law and Policy*, cit., p. 272.

In between these two sides of the same coin, the present section of this chapter will discuss whether and how the international rules on assistance at sea apply to the use of MASS³³⁶.

In so doing, this analysis reflects the same order adopted in the previous pages dealing with the study on the international legal framework on assistance at sea from a *de iure condito* perspective. Accordingly, the next sub-section will observe whether the international duties pending upon the *masters* may be applied to the use of autonomous means of maritime transport. Then, section 3(b)(ii) will investigate about what level of assistance should be required to the master acting from a remote location.

Section 3(c) will observe which implications emerge from the use of MASS for what concerns the rules obliging the *flag States*. For sake of clarity, this analysis will be divided into two parts, respectively dealing with Law of the Sea and Human Rights Law obligations.

Conclusively, section 3(d) will address the legal challenges brought by MASS for what concerns the *costal States*' role in the process of cooperation and coordination of SAR operations: even in this case, the analysis of Law of the Sea and Human Rights Law will be divided into two distinguished sub-sections.

Methodologically wise, the proposed analysis will take into account the vast spectrum of automation characterizing MASS technology; as many times pointed out in the development of this research³³⁷, not every MASS is unmanned and not every MASS is fully autonomous. When dealing with the analysis of the international duties of assistance, these technical differences acquire a pivotal relevance. For this reason, the following pages will constantly specify the level of automation under analysis.

³³⁶ The presented analysis takes its cue from the reflections provided in the journal article MANDRIOLI D., *The International Duty to Assist People in Distress at Sea in the Era of Unmanned Navigation: No Place for People On Board*, cit.

³³⁷ See section 3 of the introduction to the thesis.

b) The applicability of master's international duties in the context of MASS navigation

i) The issue concerning the absence of the legal subject (master) on board

International Law obliges the shipmasters to assist people in distress at sea³³⁸. When dealing with autonomous navigation, then, a first, preliminary, question is whether the scope of these duties further extends to the use of the MASS.

As noted before³³⁹, the international obligations under study have a *universalistic* nature; broadly speaking, rendering assistance at sea is mandatory every time navigation occurs, regardless of the design of the ship.

This conclusion is confirmed by reading the IMO treaties currently in force. Precisely, reg. I/1 of SOLAS prescribes that the Convention applies to *all* ships engaging an international voyage³⁴⁰; thus, every ship is potentially included, even the “new” ones³⁴¹. Moreover, analogous conclusions may be distilled from the analysis of the International Convention on Salvage³⁴².

Coherently with this, it seems logical to infer that even the use of MASS requires their shipmasters to assist persons in distress at sea. This position has been acknowledged by a relevant number of States which have participated in the survey organized by the CMI³⁴³: according to the majority of them, the mere fact that a ship is autonomous does not preclude the theoretical applicability of the international duties of assistance³⁴⁴.

In this respect, the use of MASS belonging to the first and second level of automation does not pose relevant concerns. These “new ships” present a mode of

³³⁸ See section 2(b) of this chapter.

³³⁹ See section 2(b)(iii) of this chapter.

³⁴⁰ SOLAS, reg. I/1,(a): «Unless expressly provided otherwise, the present Regulations apply only to ships engaged on international voyages».

³⁴¹ SOLAS, reg. I/2,(k): «“New ship” means a ship the keel of which is laid or which is at a similar stage of construction on or after the date of coming into force of the present Convention».

³⁴² In its art. 1(b), the term “vessel” is defined as: «[...] any ship or craft, or any structure capable of navigation». According to this provision, then, there is no reason not to include MASS within the conventional meaning of “vessel”.

³⁴³ See note 2 of the introduction to the thesis.

³⁴⁴ Precisely, States which expressly adopt this position are Canada, Denmark, Finland, France, Germany, Italy, Singapore, Spain, United States, Argentina, Croatia and Panama. This survey is available at <https://comitemaritime.org/work/mass/>. For more information about the States' positions in this specific regard, see LI RUI, *On the Legal Status of Unmanned Ships*, cit., p. 178-182.

operation in which the seafarers are (more or less) assisted by electronic tools³⁴⁵. Analogously to traditional vessels, therefore, their navigation is under the command of an individual, *i.e.* the master, working *on board* the ship. Therefore, there is no reason not to conclude that this individual is the recipient of the same international duties of assistance pending upon the master of a “traditional” ship.

Focusing the attention on the peculiar features characterizing MASS of the third and fourth levels of automation, instead, more specific concerns arise. Indeed, it cannot be underestimated that these ships strongly differ from any other means of maritime transport ever designed before: since their unmanned nature, they are controlled by individuals working from shore. In this occurrence, the “master” is not physically located at sea, where the international duties of assistance find their natural application. Therefore, it is quite uncertain whether these provisions further apply to the use of unmanned MASS³⁴⁶.

Intuitively, the proposed legal issue is intrinsically related to the question concerning the effective “existence” of the *master* in charge of unmanned navigation. Allegedly, if this traditional working figure “disappears”, they also cease to exist all international duties pending upon it, including those on assistance at sea³⁴⁷.

This last topic has been analyzed in the first chapter of the present research³⁴⁸. In those pages, this author advanced that the figure of the master will continue to exist even for MASS navigation. Broadly speaking, the true essence of the legal status of the shipmaster relies on his/her *position of command* over the activity of navigation: International Law does not explicitly require his/her physical location on board³⁴⁹.

³⁴⁵ COITO J., *Maritime Autonomous Surface Ships. New Possibilities – and Challenges – in Ocean Law and Policy*, cit., p. 267.

³⁴⁶ Since the very “dawn” of the technological revolution brought by MASS, this issue has been advanced by PRITCHETT, P. W., *Ghost ships: Why the law should embrace unmanned vessel technology*, cit., p. 208-210. Then, in the survey promoted by the CMI, critical thoughts in this regard have been advanced by some States. Among them, the State of Japan affirmed that: «The lack of an on-board crew can be a reason for not providing assistance of persons in distress at sea because the provision imposes the duty on the “master” of a ship». Similarly, the United Kingdom argued that: «The obligation is channelled to the master of the relevant ship. Therefore, in an unmanned context it only finds application if and to the extent the relevant unmanned ship has a “master”» (see <https://comitemaritime.org/work/mass/>).

³⁴⁷ VEAL R; RINGBOM H., *Unmanned Ships and the International Regulatory Framework*, cit., p. 106.

³⁴⁸ Precisely, see sections 4(d)(i) and 5(f)(i) of the first chapter of the present research.

³⁴⁹ CARTNER J.; FISKE, R.; LEITER T., *The International Law of the Shipmaster*, cit., p. 86: «The shipmaster [...] is a natural person who is responsible for a vessel and all things and persons in it and is responsible for enforcing the maritime laws of the flag state».

From this perspective, albeit MASS of the third level of automation are characterized by the full absence of the crew on board, their navigation still necessarily implies that an individual has the command of the ship. Therefore, the remote operator exercising the decision-making power required by the law may be reasonably qualified as the master of the ship³⁵⁰.

In compliance with these reflections, *the location on shore of the master does not preclude the applicability of the international duties on assistance at sea to the use of MASS of the third level*. From a legal viewpoint, indeed, unmanned and traditional vessels are united by the same authority in charge of an individual – the master – independently of where he/she performs his/her work. Then, since the technology of automation allows the remote operator to adequately “navigate from shore”, he/she holds the duty to assist every person found in distress at sea.

The fourth level of automation is more problematic. In this case, indeed, it is highly debatable whether a fully autonomous ship – that is able to make decisions by its own³⁵¹ – is under the “command” of a master; therefore, it is doubtful if the shipmaster’s duties of assistance apply in this occurrence.

At the state of art, it is quite hard to anticipate a solution to this issue. Accordingly, the use of MASS belonging to the fourth level of automation is still quite futuristic and, therefore, its concrete features are covered by a “veil of uncertainty”. As a consequence, even the related-question concerning the operability of shipmaster’s duties of assistance is enigmatic. In this scenario, this author agrees with the cautious position expressed by dr. Coito, according to which:

«While fully autonomous technology has not yet matured to the degree necessary to establish such a duty [of assistance], the extant obligations to render assistance at sea may yet be reshaped in the shadow of the autonomous revolution»³⁵².

³⁵⁰ In this regard, see BAUGHEN S., *Who is the master now?*, cit. Contrarily to this position, see SCHELIN J., *Manning of Unmanned Ships*, cit., p. 276: «A number of the duties that the master has today can only be fulfilled by a person who is physically present on board the ship and consequently is doubtful whether an operator controlling the ship from ashore could be considered as the master of the ship». On the same view, the Australian government affirmed in response to the CMI survey that: «[...] it would appear that the remote controller of a remote controlled unmanned ship could be considered to be its master» (see <https://comitemaritime.org/work/mass/>).

³⁵¹ IMO RSE, p. 4.

³⁵² CORTO J., *Maritime Autonomous Surface Ships. New Possibilities – and Challenges – in Ocean Law and Policy*, cit., p. 270.

ii) On the level of assistance to be required to MASS' masters

Once ascertained that the remote location of the masters does not preclude *per se* the theoretical operability of the duties under study, it is to understand which level of assistance shall be concretely performed by them to comply with International Law.

Before starting the proposed analysis, it must be specified that the following pages mainly deal with MASS belonging to the third class of automation. Accordingly, MASS of the first and second level are not particularly problematic in this regard. On the contrary, instead, the use of unmanned ships poses relevant legal challenges. *A fortiori*, then, the recourse to the fourth level of automation is largely critical; however, its futuristic nature and the potential absence of the figure of the master³⁵³ makes its analysis quite premature at the state of art³⁵⁴.

As it has been observed before³⁵⁵, the international rules on assistance at sea pose upon the shipmaster some generic obligations, whose normative content is not *a priori* established by the law. Precisely, the shipmaster's involvement in this regard may potentially go from the performance of "light" forms of succor, up to more demanding operations, such as the embarkation and the disembarkation on dry land of people found in distress at sea.

Quite logically, this normative *flexibility* is instrumental to put the master in the best possible condition for fulfilling his/her decision-making power, which, of course, must be exercised in the light of the existing circumstances³⁵⁶. Broadly speaking, these duties are generic and flexible enough to adapt themselves to the specific cases, strongly varying one from each other.

In compliance with what has been said until now, the shipmaster's duties of assistance do not necessarily consist of the performance of *rescue operations*³⁵⁷; the processes of embarkation and disembarkation into a POS surely are the best possible care to which master's conducts shall aspire, but very much depends, among others, on

³⁵³ See section 4(d)(ii) of the first chapter of this research.

³⁵⁴ see note 352 of this chapter.

³⁵⁵ See section 2(b)(ii) of this chapter.

³⁵⁶ ATTARD F., *The Duty of the Shipmaster to Render Assistance at Sea under International Law*, cit., p. 46: «the shipmaster will have to address, often in a short time, the circumstances giving predominance to the safety of life at sea and, ultimately, as set out below, much will depend on the application of due diligence by the shipmaster in evaluating the action required by law».

³⁵⁷ BAUGHEN S., *Who is the master now?*, cit., p. 136; SEVERANCE A., *The Duty to Render Assistance in the Satellite Age*, cit., p. 387.

weather conditions, the portion of the oceans where assisted people are placed, the level of seaworthiness of the assisting ship and its *technical capabilities*.

For what concerns this last-mentioned factor, even before the rise of MASS, the masters were not called to put in serious danger the crew and the ship for performing assistance activities³⁵⁸; their involvement in rescue operations has always been somehow delimited by the design of the ship.

Applying this conclusion to the use of MASS, *a fortiori*, it is reasonable to infer that:

«*The MASS's technical capabilities will define the nature and the requirements of the duty and not vice versa*»³⁵⁹.

This statement – provided by the UK domestic legislation – is particularly effective in synthetizing how the international community has started approaching the issue concerning the levels of assistance to be required to the masters of MASS belonging the third level of automation. Just to provide few other examples in this respect, Germany has argued that:

«[...] the duty to assist persons in distress should apply also to unmanned ships. However, in order to determine what kind of assistance must be rendered, the fact that the vessel is unmanned and thus is not able to perform certain tasks needs to be taken into consideration»³⁶⁰.

Similarly, Finland has noted that:

«Regardless of the application of this regulation, a MASS may be required to engage in rescue operations other than recovery of persons from water, and these operations would be considered as giving assistance to those in distress at sea»³⁶¹.

Furthermore, other States have also observed that, even if the concrete assistance provided by MASS did not reach a minimum level required by the law, the master's

³⁵⁸ See note 113 of this chapter.

³⁵⁹ Maritime UK, *Maritime Autonomous Surface Ships UK Code of Practice*, 2019, p. 99 (emphasis added).

³⁶⁰ see <https://comitemaritime.org/work/mass/>.

³⁶¹ IMO, MSC/5, *Regulatory Scoping Exercise on the use of Maritime Autonomous Surface Ships (MASS)*, Report of the Correspondence Group on MASS, Submitted by Finland, 28 September 2018, p. 21.

behaviour could not be anyway considered in violation of International Law, since it would be “excused” by a “legitimate exception”³⁶². Put differently, the (eventual) MASS incapability in rescuing people would be justified by the fact that International Law excludes the mandatory nature of the duty when assistance is “unable”, “unreasonable” or “unnecessary”³⁶³. Therefore, due to their unmanned nature, MASS of third level could be considered “unable” to assist people at sea; this technical feature would legitimately preclude the operability of the duty upon the masters working from a remote location.

According to all these positions, it emerges that the large majority of States are of the view that the masters of unmanned ships are not necessarily required to *rescue* people on board because the technical capabilities of the vessel do not (usually) allow to do so in safety conditions.

In the author’s view, the reported interpretations comply with International Law³⁶⁴. Accordingly, customary and conventional law require shipmasters to:

«do everything possible, *within the capabilities and limitations of the ship* [...]»³⁶⁵.

When dealing with autonomous navigation, then, it cannot be forgotten that unmanned MASS may face more technical limitations in providing assistance rather than traditional manned ships. This fact does not anyway preclude the application of the analyzed international duties³⁶⁶. However, it surely impacts the concrete level of assistance potentially achievable by the (remote) shipmasters. Broadly speaking, obliging them to do more than what is “reasonable” is not only illogic, but it also goes beyond what is required by the law.

In any case, this conclusion does not entail that the remote shipmasters are exonerated *tout court* from their international responsibility any time their conducts do

³⁶² This view is less supported by States rather than the first one. In the survey realized by the CMI, In any case, it is interesting to report what stated by Malta: «It is our view that that the lack of crew on board can indeed be invoked to excuse an unmanned ship from failing to provide assistance to persons in distress».

³⁶³ PAPANICOLOPULU I., *The duty to rescue at sea, in peacetime and in war: A general overview*, cit., p. 497.

³⁶⁴ This view is also supported by JORDAN S., *Captain, My Captain: A Look at Autonomous Ships and How They Should Operate under Admiralty Law*, cit., p. 298-299.

³⁶⁵ IMO, *Guidelines on the Treatment of Persons Rescued at Sea*, cit., p. 5 (emphasis added).

³⁶⁶ See section 3(b)(i) of this chapter.

not reach the maximum level of assistance potentially achievable in the light of the existing circumstances. While it is true that the unmanned nature of a ship (legitimately) reduces the intensity of the master's intervention, this does not mean that the international obligations of assistance cease to exist. From this perspective, therefore, it looks far from convincing the position of (few) States³⁶⁷, according to which the unmanned nature of MASS could reasonably exclude *tout court* the applicability of master's duties of assistance. Even though the peculiar technical capabilities of the ship surely impact on the qualification of the regulatory content of this duty, it is also true that they do not cancel its "normative existence"³⁶⁸.

From a practical perspective, then, it should come that the international rules under study are respected when MASS remote operators perform even lower levels of assistance rather than rescue operations, such as, *inter alia*:

- marking the location of the persons in distress at sea;
- launching S.O.S. signals;
- providing «invaluable video images from the distress scene until more capable assistance arrives»³⁶⁹;
- and, generally, making the «[...] best endeavours to inform the appropriate search and rescue authorities»³⁷⁰.

In synthesis, it is reasonable to predict that every time the remote shipmaster will do anything possible to assist people in distress at sea – *even though not rescuing them* – his/her conduct will comply with the existing international provisions. This is because the use of MASS does not jeopardize *per se* the functioning of the analyzed international provisions. While the recourse to this technology may strongly impact on the shipmasters' concrete capabilities of assisting people in distress at sea, this

³⁶⁷ See note 362 of this chapter.

³⁶⁸ JORDAN S., *Captain, My Captain: A Look at Autonomous Ships and How They Should Operate under Admiralty Law*, cit., p. 298-299: «it is not dispositive that the lack of a crew will absolve the vessel of its duty to aid to the extent necessary and reasonable».

³⁶⁹ See the position adopted by the United States of America in the above-mentioned CMI survey on MASS (see <https://comitemaritime.org/work/mass/>).

³⁷⁰ Maritime UK, *Maritime Autonomous Surface Ships UK Code of Practice*, 2019, p. 99. In this regard, see also COITO J., *Maritime Autonomous Surface Ships. New Possibilities – and Challenges – in Ocean Law and Policy*, cit., p. 274: «while a MASS may be unable to personally embark mariners, it may be equipped to deploy a life raft or other temporary floatation device. Similarly, a MASS that can supply even modest quantities of drinking water, food and emergency medical supplies, such as insulin and gauze, may provide life saving "bridge" until manned rescue forces arrive».

characteristic does not undermine the theoretical applicability of the international duties pending upon the masters; in final words, the use of MASS well fits into the *flexible* normative framework established by International Law.

c) The applicability of flag State's duties concerning MASS navigation

i) Law of the Sea obligations

Continuing with the proposed analysis, the present section analyzes whether and how the duties of assistance at sea in charge of the flag State are challenged by the use of MASS.

With limited reference to the rules provided by the Law of the Sea, art. 98,1 of UNCLOS asks States to ensure that the masters of the ships flying their flag are posed in the best possible care to rescue people in distress at sea³⁷¹. This norm is finalized to give shape to the genuine link bonding the flag State and its national vessels. In particular, art. 98,1 (in a joint lecture with art. 94) sets a due diligence obligation, according to which the State shall effectively control that the construction, the seaworthiness, the manning and the equipment of ships flying their flag concretely comply with adequate standards of safety, and, therefore, that the national vessels can provide the best possible level of assistance potentially achievable in the light of the existing circumstances: put differently, shipmasters shall be in the condition to *rescue* people in distress at sea.

In this regard, it is asked whether the use of MASS may impact on the UNCLOS regulatory framework. At the state of art, this topic has not been particularly addressed by States³⁷² nor international organizations³⁷³, which are currently paying more attention to the (previously analyzed) issue concerning the use of MASS and the

³⁷¹ See section 3(c)(i) of this chapter.

³⁷² Precisely, no mention is made in this regard by States in their responses to the survey on MASS redacted by the CMI.

³⁷³ Observing the IMO RSE, it merely observes that: «The concept of unmanned MASS requires principle assumptions and new concept thinking related to the process of evacuating persons on board a ship carrying passengers and rescuing persons from the water that cannot just be accommodated by amending existing instruments or applying equivalents» (p. 29).

application of the international duties directly in charge of the shipmaster. As constantly remarked in the development of this chapter, the international regulation of assistance at sea is composed of different rules, posing different duties upon different legal subjects. In order to provide a full panoramic about the implications arising from the use of MASS, therefore, the analysis of the international obligations pending upon the flag States cannot be dismissed.

In addressing this issue, the present study³⁷⁴ distinguishes autonomous ships depending on their *manned* (first and second levels of automation) or *unmanned* (third and fourth levels³⁷⁵) nature. Accordingly, the former category may be equated to that of traditional vessels in terms of their theoretical capacity to carry out rescue operations. Even more, these “smart ships” provide their masters with extremely accurate information for performing SAR activities³⁷⁶. From this perspective, then, their use would be not only lawful but also particularly functional in the achievement of the final purpose of art. 98,1 of UNCLOS, *i.e.* the effective protection of people found in distress at sea.

As far as unmanned MASS are concerned, instead, this author comes to very opposite conclusion.

As it has been already noted³⁷⁷, indeed, the use of unmanned means of maritime transport may potentially lower the level of assistance to be required to shipmasters³⁷⁸: in few words, if ships are not designed for hosting people on board, it is unreasonable to ask their masters to do so. Although this occurrence does not contrast with the previously mentioned shipmaster’s duties of assistance, this does not anyway exclude

³⁷⁴ Sections 3(c)(i) and 3(c)(ii) of the present chapter.

³⁷⁵ For what concerns the analysis of the adaptation of flag State’s duties of assistance to the use of MASS, the fully-autonomous nature of the fourth level of automation does not pose relevant concerns. Accordingly, these rules do not oblige directly the shipmaster. Contrary to what noted in section 3(b)(ii), the eventual “absence” of this figure do not undermine the functioning of the norms here under study. For this reason, these pages observe MASS of the third and fourth levels as a unique category.

³⁷⁶ See note 335 of this chapter.

³⁷⁷ See section 3(b) of this chapter.

³⁷⁸ COITO J., *Maritime Autonomous Surface Ships. New Possibilities – and Challenges – in Ocean Law and Policy*, cit., p. 274: «These limitations tend to weaken the argument that unmanned maritime systems are a more “persistent” asset than their manned counterparts. Moreover, even when a MASS can reach a distressed mariner, it will likely have a limited capacity to provide emergency shelter or medical support».

that the same circumstances could seriously affect the assessment of the standard of due diligence imposed by the UNCLOS to the flag State³⁷⁹.

In the author's view, the State's decision to grant the national flag to an unmanned ship unable to perform rescue operations appears to be in potential conflict with what is provided by art. 98,1 of UNCLOS (in a joint lecture with arts. 91 and 94). This conclusion is based, at least, on two grounds.

First, this conduct seems to conflict with the specific wording of the above-mentioned article. As noted before, indeed, this treaty provision obliges the flag States not simply to put their masters in the condition to generally provide assistance to people in distress at sea, but to *rescue* them. Accordingly:

«Every State shall require the master of a ship flying its flag [...] to proceed with all possible speed *to the rescue of persons in distress* [...]»³⁸⁰.

Remembering that the performance of rescuing activities necessarily comprehends the process of embarkation³⁸¹, it derives that the flag State, when admitting the use of MASS not designed for hosting people on board, is concretely precluding remote operators from performing the maximum level of assistance required by the law. Put differently, the State is *a priori* delimiting the margin of intervention of their masters when they are (eventually) called to deal with life or death situations.

Second, this decision appears to even conflict with the rationale of art. 98,1 of UNCLOS. When interpreting in good faith³⁸² the text of the analyzed treaty provision, it emerges that its main purpose is to guarantee the *most* valuable assistance to persons found in a situation of emergency at sea. Broadly speaking, this rule aims at building a safe marine environment, where people, even if in distress, may not lose their life. Once acknowledged this, it is difficult to admit that *economic interests can play a decisive role in finding an equilibrium between the use of unmanned ships and the resultant decrease in terms of assistance to people in distress at sea.*

³⁷⁹ As many times remarked, indeed, the legal framework on assistance is composed of different norms, obliging different subjects: a cautious distinction of these sets of rules strongly helps in the stage of decoding the impact of the use of MASS into this field.

³⁸⁰ (emphasis added). For more in this regard, see section 2(c)(i)(II) of this chapter.

³⁸¹ See note 118 of this chapter.

³⁸² VCLT, art. 31,1.

The technological innovation brought by MASS offers big opportunities for maximizing profits from the transport of goods at sea³⁸³. This (legitimate) economic interest is driving both public and private players to invest in the development and construction of unmanned vessels. In synthesis, it is an economic reason that poses the question concerning the legality of the use of unmanned MASS.

However, the scope and the content of international rules on assistance at sea are fully independent of economic grounds³⁸⁴. In this respect, it has been already noted that the master's discretion in evaluating the reasonableness of providing assistance must be insensitive to the economic consequences eventually coming from³⁸⁵: for example, delays in commercial trading are not relevant when sea-men are called to save the life of other humans at sea.

Today, instead, economic interests are sneakily defining the limits in providing assistance. Broadly speaking, from the very moment of the unmanned MASS' construction and registration into national registers, the delimitation of the concrete capabilities of the ship to rescue and embark persons at sea are *a priori* established by economic reasons.

In the author's view, the UNCLOS regime does not admit that the delicate equilibrium between the use of unmanned MASS and the reduction of assistance levels can be based on economic perspectives. Otherwise, it would be hard to accept this technological development from both ethical and legal perspectives.

Of course, this does not mean that art. 98,1 of UNCLOS prohibits *per se* the use of MASS; however, it asks States to ensure that every vessel flying its flag shall be able to perform rescue operations.

Contrarily to what has been noted concerning the shipmaster's duties of assistance, when dealing with flag States duties, *it is the standard of conduct provided by UNCLOS that defines the nature and the requirements of MASS' assistance, and not vice versa*³⁸⁶. Allegedly, the use of every MASS shall guarantee, at least, the same potential level of affordability in performing assistance measures guaranteed by traditional manned ships.

³⁸³ See section 1 of the first chapter of this research.

³⁸⁴ DAVIES M., *Obligations and Implications for Ships Encountering Persons in Need of Assistance at Sea*, cit.

³⁸⁵ See note 116 of this chapter.

³⁸⁶ This goes in the exact opposed position to what enshrined in the above mentioned UK national legislation on the use of MASS (Maritime UK, Maritime Autonomous Surface Ships UK Code of Practice, 2019, p. 99).

As it has been already outlined, MASS of the first and second classes of automation may easily ensure this result (if not more). More problematic, instead, is the possibility for an unmanned ship to rescue people on board.

In any case, it must be emphasized that, albeit more expensive, *it is not technically unrealistic to ask MASS of third and fourth levels of automation to carry out rescue activities*. In the previous pages, indeed, it has been already highlighted how the technology of automation may be useful for the performance of «dull, dirty and dangerous» SAR operations³⁸⁷. Just to provide a concrete example in this respect, the European project “ICARUS” specifically deals with the implementation of technology of automation in the field of rescuing people at sea³⁸⁸. From a factual perspective, therefore, this technological advancement does not necessarily preclude the performance of rescue activities. On the contrary:

«Unmanned maritime vehicles may have a range of sizes, technologies, capabilities and applications. Uses could range from: local rescue – fire services and police, man overboard response, ship-based response – launch in advance of or in lieu of a manned boat, surf zone and dangerous environment response, deployment from an aircraft of as a stand-alone vessel – such as in remote location»³⁸⁹.

Of course, it could be more expensive for the shipping industry to build unmanned MASS capable of embarking persons on board. However, as said before, economic reasons shall not play any role in this field³⁹⁰.

Thereby, according to the international rules currently in force, flag States must control that (even) unmanned ships are able to potentially rescue people in distress at sea³⁹¹.

³⁸⁷ See section 3(a) of this chapter.

³⁸⁸ For more information, visit the website <http://www.fp7-icarus.eu/>.

³⁸⁹ *Unmanned Vehicles Could Aid Search and Rescue*, The Maritime Executive, 16 December 2016.

³⁹⁰ In this sense, see MUNARI F., *Search and Rescue at Sea: Do New Challenges Require New Rules?*, in CHIRCOP A.; GOERLANDT F.; APORTA C.; PELOT R.(eds.), *Governance in Arctic Shipping*, Cham, 2020, p. 77: «As long as we are not able to control and limit apparently unbeatable market forces, law should at least restore the balance of interests that – as shown – initially founded the international SAR regime».

³⁹¹ To confirm the validity of the adopted position, it seems particularly effective to report the solution promoted by the Republic of France, according to which: «Unmanned ships should therefore only be authorized to sail if they are technically able to provide assistance [...]. That means unmanned ships must be equipped with ways of recovery at sea, and ways to ensure the protection of rescued persons aboard (cabins, food, etc.)» (See <https://comitemaritime.org/work/mass/>).

When reading art. 98,1 of UNCLOS concerning the use of unmanned MASS, conclusively, a further critical aspect emerges. According to its letter (c), the coastal State shall ensure that, «after a collision», the master will:

«[...] *inform the other ship of the name of his own ship, its port of registry and the nearest port at which it will call*»³⁹².

Imagine a collision between a manned and an unmanned ship, or between two unmanned ships. In this occurrence, the two colliding vessels should respectively share their generalities; thus, they must be able to communicate with each other. Intuitively, the capability of an unmanned ship to relate with other embarkations may be different from that of a traditional ship and, presumably, more problematic³⁹³. Once acknowledged this, one may wonder whether the flag State, in granting its national flag to unmanned MASS limited in communicating with the colliding vessels, would violate letter (c) of art. 98,1 of UNCLOS.

Adopting a literal interpretation, it could be sustained that this duty occurs only «*where possible*»³⁹⁴; from this perspective, the UNCLOS would guarantee a good margin of flexibility for what concerns the informative duties in charge of the master arising from a collision. Therefore, the objective delimitations characterizing unmanned MASS in this regard could be admitted in International Law.

On the contrary, this author retains that the flag State must always control that every national ship is capable to interact with other vessels; no exception is provided by the Law of the Sea. Accordingly, the specification that the master shall inform the other vessels only «*where possible*» is just a further declination of the fact that it cannot be asked the master to perform impossible activities. For example, if a ship's radio communication is broken, it is *unreasonable* to ask the master to share the ship's generalities with the other vessels.

Beyond unexpected contingencies, therefore, the flag State shall ensure that every master under its jurisdiction can communicate with other ships, whether manned or unmanned. Following this reasoning, the flag State cannot grant its nationality to ships

³⁹² UNCLOS, art. 98,1 (c) (emphasis added).

³⁹³ WAHLSTRÖMA M.;, HAKULINENB J.; KARVONENA H.; LINDBORGC L., *Human factors challenges in unmanned ship operations – insights from other domains*, ScienceDirect, 2015, p. 1038-1045.

³⁹⁴ Ibid.

that are *a priori* delimited in performing the mentioned informational tasks. Otherwise, the former should be responsible for having breached letter (c) of art. 98,1 of UNCLOS. Even in this regard, therefore, it is the standard of conduct set by UNCLOS that defines the nature and the requirements of MASS' assistance, and not *vice versa*.

ii) The applicability of Human Rights Law obligations

Beyond the Law of the Sea, the role played by the flag State in assisting people in distress at sea is completed by the provisions belonging to the regime of Human Rights Law³⁹⁵. Due to the jurisdictional connection bonding the flag State and their national vessels³⁹⁶, the former shall protect the right to life of people eventually found in distress at sea by the latter. Moreover, States must ensure that rescued persons are not treated in a degrading way, in full respect of their fundamental human needs.

Within this scenario, it is asked which legal implications may emerge from the rise of MASS navigation. Following what has been noted in the previous pages, the use of MASS of the third and fourth levels of automation may potentially lower the capability of assistance in favour of people in distress at sea. This fact could have concrete repercussions on the protection of the life of individuals facing an emergency at sea. Therefore, it is reasonable to infer that it would also impact on the flag State's compliance with the above-mentioned human rights obligations.

With specific regard to the protection of the right to life, Human Rights Law poses a generic duty on States to do everything possible to avoid the concretization of a risk attempting the life of an individual under their jurisdiction. Precisely, when dealing with the positive obligations rising from art. 2 of the ECHR³⁹⁷, the ECoHR has many times affirmed that State parties must do:

³⁹⁵ This topic has been intensively analyzed in section 2(c)(ii) of the third chapter of the present research.

³⁹⁶ See note 201 of this chapter.

³⁹⁷ Notoriously, this article is the source of the State's positive obligations dealing with the protection of the life of individuals under its jurisdiction.

«[...] all that could *reasonably* be expected of them in circumstances to avoid risk»³⁹⁸.

This «general»³⁹⁹ obligation is not further specified by the law. Beyond the fact that the States' conduct must *reasonable*⁴⁰⁰, the specific content of the duty is to be inferred by observing the circumstances characterizing the case at stake.

For what concerns the procedure of evaluation of the reasonableness of certain State conduct, the level of *foreseeability* of the risk is a decisive factor⁴⁰¹. Intuitively, the more a threat to a human's life is predictable, the more it is *reasonable* to expect that a State is prepared to properly face this adversity.

Applying this reasoning into the field of assistance at sea, then, it derives that the State must do whatever is reasonable to save the life of persons found in distress at sea by ships flying its flag. Traditionally, a reasonable response is to constantly monitor the behaviours of the assisting ship⁴⁰². Put differently, from the very moment of the registration of the (manned) ship, the State shall predispose control-measures about the seaworthiness and the technical capabilities of the national vessel, so that it is reasonable to rely on the fact that the master can effectively rescue the people eventually found in distress at sea. Moreover, in the case that the master does not fulfill his/her responsibility, the flag State shall condemn and punish such unlawful behaviours⁴⁰³.

³⁹⁸ *Osman v. United Kingdom*, cit. (emphasis added). This statement has been confirmed in *Valentin Câmpeanu v. Romania*, judgement of 17 July 2014, (App. no. 47848/08), para. 130: «Such positive obligations arise where it is known, or ought to have been known to the authorities in view of the circumstances, that the victim was at real and immediate risk from the criminal acts of a third party and, if so, that they failed to take measures within the scope of their powers which, judged reasonably, might have been expected to avoid that risk». Again, see *A. and Others v. Turkey*, Judgement of 27 July 2004, (App. No. 30015/96), paras. 44-45.

³⁹⁹ ECHR, *Guide on Article 2 of the European Convention on Human Rights*, cit., p. 6.

⁴⁰⁰ Among others, this specific aspect is in depth analyzed by CANNIZZARO E., *Il principio di proporzionalità nel diritto internazionale*, cit., p. 39-93.

⁴⁰¹ HRC, *General Comment No. 36 (2018) on article 6 of the International Covenant on Civil and Political Rights, on the right to life*, 2018, CCPR/C/GC/36, para. 7: «The obligation of States parties to respect and ensure the right to life extends to *reasonably foreseeable threats* and life-threatening situations that can result in loss of life. States parties may be in violation of article 6 even if such threats and situations do not result in loss of life.». In ECoHR jurisprudence, the relevance of predictability of a risk is analyzed in *McCann and Others v. United Kingdom*, cit., para 205; *Eremiášová and Pechová v. the Czech Republic*, Judgement of 20 June 2013, (App. No. 23944/04), para. 117; *Keller v. Russia*, cit, para. 88. In scholarship, among others, see CANNIZZARO E., *Il principio di proporzionalità nel diritto internazionale*, cit.

⁴⁰² See section 2(c)(ii) of this chapter.

⁴⁰³ *Ibid.*

For what concerns unmanned navigation, however, it is more difficult to sustain that the same conduct is *per se* sufficient to comply with the standard of due diligence required by Human Rights Law. Accordingly, when granting their nationality to unmanned ships, *flag States are surely conscious of the factual limitations of MASS in rescuing people in the marine domain*. Therefore, in the eventuality that an unmanned MASS finds persons in distress at sea, the *risk* that they cannot be sufficiently assisted is *highly foreseeable*. In other words, from the very moment of the inscription of the MASS into national registers, the flag State is well conscious of the (potential) threat that people in distress could face when meeting a national unmanned vessel.

Therefore, it is here sustained that flag States, in doing everything possible to avoid the concretization of this risk, may not simply rely on MASS masters' behaviours, as they did in the past. Albeit this conduct may be considered *reasonable* when dealing with manned ships (whether traditional ships or MASS of the first and second levels), it could not be enough when the flag State had always known that the assisting ship was unable to embark and disembark people found in distress at sea.

Per definition, since this international obligation consists of a generic duty of *conduct*, the way how a State performs this legal request is not further specified by the law. Therefore, Human Rights Law does not prohibit *tout court* the use of MASS⁴⁰⁴ and, in particular, of unmanned ships; in the absence of sufficient State practice, it is quite hard to predict how States may comply with human rights obligations in this regard.

Within this blurred and uncertain picture, however, one thing seems to be sufficiently clear: what is *reasonable* about traditional ships may be not when dealing with MASS belonging to the third and fourth classes of automation. Therefore, it is the position of this author that the granting of nationality to unmanned vessels necessarily obliges the respective flag State to increase its concrete involvement in the process of assistance to people in distress at sea.

This conclusion is based on logical grounds: if the role of the master is downsized by the technical capabilities of the ship, the flag State is called to intervene more intensively to ensure (at least) the same level of assistance characterizing the use of

⁴⁰⁴ Intuitively, MASS belonging to the first and second levels of automation do not generate theoretical concerns in this regard. As noted before, indeed, they are manned ships able to rescue people in distress at sea as far as traditional vessels (see section 3(c)(i)).

traditional ships. Put differently, if a State allows the use of vessels incapable of rescuing, it must be ready to compensate for the limits in terms of safety deriving from its own decision. Otherwise, the consequences brought by the use of unmanned MASS would bring to an odious paradox, fully unacceptable from a human rights perspective: that the more technology develops, the less the life of people in distress at sea is concretely protected⁴⁰⁵.

d) The applicability of coastal State's duties concerning MASS navigation

i) Law of the Sea obligations

In conclusion to the proposed study, the last pages of section 3 are dedicated to understanding whether and how the growing use of MASS impacts on the applicability of the coastal States' duties on assistance.

Starting with the analysis of the Law of the Sea provisions, it has been previously noted⁴⁰⁶ that the UNCLOS obliges this class of States to configure and maintain SAR services and to cooperate with their neighboring countries in order to ensure functional global governance over the oceans⁴⁰⁷. Expanding the scope of the investigation, this due diligence obligation is further completed by the provisions enshrined in the SOLAS⁴⁰⁸ and the SAR conventions. In particular, the latter treaty aims at systematizing the role of the coastal States in the performance of SAR operations⁴⁰⁹. On behalf of their growing role in the governance of the oceans⁴¹⁰, indeed, coastal States are increasingly called to participate in the protection of people facing emergencies at sea.

In this regard, one may wonder why the use of MASS should be a “factor” within this legal picture. Unlike the duties pending upon the masters and the flag States, in fact, the international rules now under attention do not specifically regulate the “factual” features of the assistance activities; on the contrary, they mainly deal with the

⁴⁰⁵ MANDRIOLI D., *The International Duty to Assist People in Distress at Sea in the Era of Unmanned Navigation: No Place for People On Board*, cit. p. 93.

⁴⁰⁶ See section 2(d)(i) of this chapter.

⁴⁰⁷ PAPASTAVRIDIS E., *Is there a right to be rescued at sea? A skeptical view*, cit., p. 22.

⁴⁰⁸ In particular, see SOLAS, regs. V/7; V/1 and V/33.1-1.

⁴⁰⁹ See section 2(d)(iii) of this chapter.

⁴¹⁰ See note 228 of this chapter.

cooperation of States in this regard. Put differently, while the first two mentioned normative blocks directly govern the physical performance of the SAR operations, the latter mainly address their coordination.

Once said this, however, it must be remembered that these rules set duties of conduct⁴¹¹, whose normative content is based on *the specific circumstances of the case*⁴¹². Therefore, since the coordination and cooperation of SAR operations «[...]depend on ships at sea to assist persons in distress»⁴¹³, it derives that the peculiarities characterizing the use of MASS may even influence the regulatory content of the (flexible) duties in charge of the coastal States.

Analogously to what has been argued in the previous section, even in this case the major challenges brought by automation technology are related to the unmanned nature of MASS belonging to the third and fourth classes of automation. These new means of maritime transport, indeed, may potentially meet serious difficulties in embarking and disembarking people found in distress at sea. The same cannot be said for what concerns the use of *manned* MASS⁴¹⁴, whose navigation does not pose relevant issues in this regard; quite the opposite, indeed, they can be even better equipped to assist people in distress at sea⁴¹⁵.

Starting the analysis, art. 98,2 of UNCLOS obliges the coastal States to establish «adequate and effective»⁴¹⁶ SAR national systems, in order to ensure that the emergencies eventually occurring at sea may be properly addressed. In this respect, it is reasonable to infer that the increasing circulation into the territorial waters of unmanned ships incapable of rescuing could “play a role” in the process of the configuration of «adequate and effective» SAR national services.

Observing the UNCLOS in its entirety, it emerges that coastal States may establish the conditions of the innocent passage of foreign ships concerning their level of seaworthiness and safety of navigation. Accordingly:

«The coastal State may adopt laws and regulations [...] in respect of [...]:

⁴¹¹ See note 247 of this chapter.

⁴¹² The flexible and evolutive nature of this field of law is well analyzed by MUNARI F., *Search and Rescue at Sea: Do New Challenges Require New Rules?*, cit.

⁴¹³ IMO, *Guidelines on the Treatment of Persons Rescued at Sea*, cit., p. 5 (emphasis added).

⁴¹⁴ MASS belonging to the first and second classes of automation.

⁴¹⁵ See section 3(c)(i) of the present chapter.

⁴¹⁶ UNCLOS, art. 98,2.

- (a) the safety of navigation and the regulation of maritime traffic;
- (b) the protection of navigational aids and facilities and other facilities or installations [...]»⁴¹⁷.

Therefore, it could be advanced that, to fulfill the duty of establishing «adequate and effective» SAR services in the “era of autonomous navigation”, the coastal States may evaluate whether or not admitting the passage within their territorial waters of unmanned MASS unable to perform rescue operations. Allegedly, this decision would “erase” the issue concerning the reduction of the level of assistance here analyzed. In so doing, the coastal States could continue on relying on the fact that private vessels are able to play their typical role in assisting people in distress at sea; from this perspective, this solution could effectively favour the establishment of an adequate SAR national system.

At the same time, however, it cannot be forgotten that the UNCLOS usually precludes coastal State’s normative power on the design, the construction, the manning and equipment of foreign ships⁴¹⁸, *unless*:

«they [coastal States] are giving effect to generally accepted international rules or standards»⁴¹⁹.

Therefore, in the current lack of international rules and standards about the use of unmanned means of maritime transport⁴²⁰, it is difficult to admit the possibility for a coastal State to prohibit *tout court* the passage of MASS of third and fourth levels within their national waters⁴²¹. This conclusion gives rise to further considerations.

First of all, the existing normative gap about the use of MASS technology gives shape to a climate of regulatory uncertainty. This fact is highly detrimental not only with regard to the regulation on safety of navigation⁴²², but also for what concerns the performance of assistance measures at sea. In the author’s view, a quick and resolute

⁴¹⁷ UNCLOS, art. 21,1.

⁴¹⁸ UNCLOS, art. 21,2.

⁴¹⁹ Ibid.

⁴²⁰ This topic has been addressed in the first chapter of the present research.

⁴²¹ Among others, this interpretation is promoted by YEN-CHIANG CHANG; CHAO ZHANG; NANNAN WANG, *The international legal status of the unmanned maritime vehicles*, Marine Policy, 2020, p. 4; JORDAN S., *Captain, My Captain: A Look at Autonomous Ships and How They Should Operate under Admiralty Law*, cit., p. 297.

⁴²² This issue has been in-depth analyzed in the first chapter of the present research.

intervention of the international community and, in particular, of the IMO, is highly recommendable.

In addition, another consideration could be advanced: since the UNCLOS does not give the coastal States the right to preclude the entrance of unmanned MASS within their territorial seas, the former are anyway called to establish SAR national services «adequate and effective» to the new threats deriving from MASS navigation. Put differently, once acknowledged that unmanned ships are not prohibited from circulating into the marine domain, the coastal States are called to “deal with” the risks introduced by this technology in the field of assistance at sea. Intuitively, the less level of assistance that may be expected by the shipmasters and their respective flag States, the more the coastal State should be directly involved in the process of assisting people in distress at sea. Otherwise, the effectiveness of the entire normative system would be seriously threatened by the growing use of unmanned MASS.

Clearly, in the current lack of relevant practice, it is difficult to foresee which concrete strategies the coastal States should take to properly face this innovative challenge. Within this broad and uncertain scenario, however, one firm point is that the traditional activity of coordination of the SAR facilities performed by the national RCCs risks not being «adequate and effective» anymore.

Presumably, the coastal States should empower the avail of their SAR units, in order not to “leave alone” unmanned ships in assisting people in distress at sea. In so doing, they could surely avail of the technological advancement for performing SAR operations. As it has been noted before⁴²³, the technology of automation does not only «presents exceptionally difficult questions», but it may also open up to «new possibilities in personal and digital maritime mobility»⁴²⁴. Accordingly, some States have already integrated unmanned and autonomous technology at sea, in order to adjourn and make more efficient their SAR national systems⁴²⁵. This solution appears to be one of the first possible intervention that could be adopted by the coastal States to fulfill with their international duties of assistance.

⁴²³ See section 3(a) of this chapter.

⁴²⁴ CORTO J., *Maritime Autonomous Surface Ships. New Possibilities – and Challenges – in Ocean Law and Policy*, cit., p. 263.

⁴²⁵ This author had the chance to implement his knowledge about this topic by participating at the conference “*Maritime Search and Rescue 2020*”, organized by *Defence Leaders*. For a summary of the information outlined in the conference, see https://defenceleaders.com/wp-content/uploads/2019/12/MSAR2020_GlobalProcurementProgrammes-1.pdf.

Shifting now the attention on the legal regime provided by the SAR Convention, the use of unmanned ships poses further legal concerns.

In this regard, the first question is whether these unmanned vessels may be still considered as «SAR facilities», as defined by the SAR Convention⁴²⁶. Since they are not designed to rescue persons at sea, indeed, one may wonder whether they fit within the nomenclature provided by art. 1.3.7 of the Convention, according to which «SAR facilities» are:

«Any mobile resource, including designated search and rescue units, used to conduct search and rescue operations»⁴²⁷.

In the author's view, this interpretative issue must be solved positively. Through the reading of the reported provision, the SAR Convention does not exclude that ships unable to rescue cannot be considered as useful facilities for assisting persons at sea. As many times remarked in the development of this chapter, assistance is a broad concept, that includes both the activities of “search”⁴²⁸ and “rescue”⁴²⁹. Thus, even unmanned MASS not designed for performing rescuing operations surely can “search” and, more generally, assist people in distress at sea⁴³⁰: from this perspective, they are useful facilities, whose concrete involvement in SAR operations shall be coordinated by the coastal States in compliance with what is set by the SAR Convention.

Concluding the analysis, it emerges the related issue of whether MASS of third and fourth levels may be considered a temporary POS, as far as traditional ships⁴³¹. Intuitively, their incapability of embarking and hosting persons in distress seems to preclude the possibility to consider this category of MASS as a POS, even for a limited timeframe; if they cannot satisfy the basic human needs of people in distress⁴³², then, they cannot play a relevant role in this respect. As a consequence, and conclusively,

⁴²⁶ SAR Convention, art. 1.3.7.

⁴²⁷ Ibid.

⁴²⁸ SAR Convention, art. 1.3.1.

⁴²⁹ SAR Convention, art. 1.3.2.

⁴³⁰ As it has been noted in section 3(b)(ii) of this chapter, unmanned ships may mark the location of the persons in distress at sea; launch S.O.S. signals; provide invaluable video images from the distress scene until more capable assistance arrives and, generally, making the «[...] best endeavours to inform the appropriate search and rescue authorities» (see Maritime UK, *Maritime Autonomous Surface Ships UK Code of Practice*, 2019, p. 99).

⁴³¹ *IMO Guidelines on the Treatment of Persons Rescued at Sea*, cit., p. 8.

⁴³² As requested by the definition provided by the *IMO Guidelines on the Treatment of Persons Rescued at Sea*, cit., p. 8. To more in this regard, see section 2(d)(iii) of this chapter.

when fulfilling their duties of cooperation and coordination, the coastal States could not afford the capability of the “unmanned SAR facilities” to temporary host people found in distress at sea.

ii) The applicability of Human Rights Law obligations

The navigation of MASS belonging to the third and fourth levels of automation may even impact on the coastal States’ compliance with Human Rights obligations. Coherently with what has been argued before⁴³³, in fact, the use of unmanned means of maritime transport may potentially reduce the expected capability of intervention of the assisting ships in case of emergencies at sea; specularly, the right to life of people in distress at sea is (even more) threatened by the risk of not being sufficiently assisted, opening up to the issue concerning the applicability of human rights obligations in charge of the coastal States.

Since States enjoy (territorial) sovereign powers over the portion of waters within twelve nautical miles far from their coasts, they are responsible to ensure that the human rights of people located there are fully respected⁴³⁴. In particular, as far as the protection of the right to life is concerned, the coastal States shall do everything *reasonably*⁴³⁵ possible to avoid the threats attempting the life of people under their jurisdiction⁴³⁶.

Intuitively, the use of unmanned MASS potentially increases the risk that people in distress at sea within territorial waters may not receive adequate assistance from their “remote” colleagues. Although this occurrence is just hypothetical, at the same time, this does not exclude its predictability⁴³⁷; therefore, the coastal States – as well as flag States – are called to empower their response to this new risk (potentially) occurring within the waters under their (*de iure*) jurisdiction.

⁴³³ See section 3(c)(ii) of this chapter.

⁴³⁴ See note 194 of the present chapter.

⁴³⁵ For more information about the role played by the “reasonableness test” in this respect, see section 3(c)(ii) of this chapter.

⁴³⁶ In this regard, we refer to ECoHR jurisprudence. In this sense, see *Osman v. United Kingdom*, cit.; *Valentin Câmpeanu v. Romania*, cit., para. 130; *A. and Others v. Turkey*, cit., paras. 44-45. In scholarship, see TREVISANUT S., *Is there a right to be rescued at sea? A constructive view*, cit., p. 14.

⁴³⁷ See note 401 of this chapter.

In this regard, it is arguable that, to comply with the standard of due diligence set by Human Rights Law, the growing use of unmanned MASS should impose on the coastal States to “do more” rather than they are used to do in dealing with traditional navigation. More concretely, it is arguable that coastal States should get a solid knowledge about the technical capabilities of these ships entering into their national waters. By collecting this information, in fact, they could get sufficient awareness about the potential risks eventually faced by individuals under their (*de iure*) jurisdiction. This first, but fundamental, response would surely enlarge the capability for the coastal State to properly face the emergencies occurring at sea compounded by the use of unmanned means of maritime transport, acting in compliance with the existing human rights obligations.

Analogously to what has been noted in the previous pages, then, the coastal States would also be called to strengthen the performance of SAR operations rather than they were used in the past. In this regard, the avail of the technology of automation may be of strong help in dealing with «dull, dirty and dangerous» SAR operations⁴³⁸.

To complete – and conclude – the present analysis, it is important to remark once again that, beyond territorial waters, when States have *de facto* jurisdiction over assistance activities, they are anyway called to ensure the respect of human rights of people in distress at sea⁴³⁹. Even in this case, then, the fact that the assisting unmanned ship is unable to embark and disembark persons at sea may potentially require more efforts in charge of the SAR national authorities for protecting the right to life of the people under their jurisdiction. In this regard, it has been noted that the role of the SAR coordinator played by the coastal State in its respective SAR region *might* lead to the establishment of a *de facto* control over specific SAR operations even beyond territorial waters⁴⁴⁰. In this circumstance, the fact that MASS of third and fourth levels are more limited in assisting people in distress can strongly impact on the assessment of the standard of care asked by Human Rights Law.

⁴³⁸ See section 3(a) of this chapter.

⁴³⁹ See section 2(d)(ii) of this chapter.

⁴⁴⁰ As noted above, this view has been recently adopted by the HRC in the decision *A.S. and Others v. Malta*, cit. However, it has been already specified that this author retains that the mere fact that rescue operations took place within a SAR region is *per se* considered irrelevant for the assessment of *de facto* jurisdiction: Put differently, the configuration of a SAR region is “jurisdictionally neutral”. From this perspective, see MILANOVIC M., *Drowning Migrants, the Human Rights Committee, and Extraterritorial Human Rights Obligations*, cit.

Even in this case, however, there is no sufficient State practice to which more concrete analysis may be inferred: the author is well conscious that the contemporary age is a period of technological transition. Nowadays, it is quite hard to imagine and to anticipate how SAR States shall act for protecting the life of people found in distress at sea by fully unmanned vessels, incapable of rescuing them on board.

In any case, what it can be remarked still today is that the less level of assistance may be expected by the shipmasters involved, the more the States should resolutely intervene. Albeit at the state of art it is not clear *how* the use of unmanned MASS will concretely impact in this respect, what is (relatively) certain is that States could not ignore the new and *foreseeable* threats attempting the life of people in distress at sea brought by this disruptive technological revolution.

iii) MASS and the disembarkation into a POS

As it has been in-depth analyzed before⁴⁴¹, the identification of the place where to disembark rescued people is delicate issue, whose solution is far from being easily solved by the current configuration of International Law. In particular, the phenomenon of mixed migratory flows by sea has even more exacerbated this legal debate. In the last few years, the issue concerning the process of disembarkation into a POS has polarized the critical analysis of the rules on assistance at sea⁴⁴². Well conscious of this, the last paragraph of section 3 aims at understanding if the growing use of MASS will play a role in this respect.

In the author's view, the recourse to automation technologies is substantially *neutral* with regard to the issue concerning the disembarkation of rescued people into a POS: in few words, the use of MASS neither solves nor exacerbate the issues related to this topic.

The identification of the POS is a process of coordination of different interests of the international community, from the protection of the life of individuals to the respect of the sovereignty of States, from the establishment of a global marine order to the

⁴⁴¹ For more information in this regard, see section 2(d)(iii) of this chapter.

⁴⁴² See note 230 of this chapter.

governance of migration of populations. Accordingly, this topic necessarily involves the contextual application of many rules belonging to different international regimes⁴⁴³.

In this respect, the technical features characterizing rescue operations are not particularly relevant. The “pulsing heart” of the identification of a POS is the equilibrium to reach between the principle of territorial sovereignty and the protection of human rights and refugee law; from this perspective, the capabilities and the inconsistencies of the ships in providing assistance at sea are just *factual elements*. Therefore, they surely assume some importance for the analysis of the specific circumstance, because they are concrete factors to take into account by the States involved in the definition of the POS. From a mere theoretical perspective, however, they do not particularly influence the solution of this articulated legal puzzle.

For all these reasons, it is here sustained that the use of MASS will not pose innovative concerns in this respect⁴⁴⁴. At the same time, this also means that the use of MASS does not even solve any of the critical aspects characterizing the process of the identification of the POS. Put differently, and concluding the analysis of this chapter, the avail of the technology of automation is quite neutral in this regard.

⁴⁴³ To more in this regard, among many others, see GIUFFRÈ M., *The Readmission of Asylum Seekers under International Law*, cit.; TREVISANUT S., *The Principle of Non-Refoulement and the De-Territorialization of Border Control at Sea*, cit.; GAMMELTOFT-HANSEN T., *Access to Asylum: International Refugee Law and the Globalisation of Migration Control*, cit.

⁴⁴⁴ This conclusion seems to be *indirectly* confirmed in scholarship. Accordingly, although the generic topic concerning the use of MASS and the international duties of assistance is more and more analyzed (see note 18 of this chapter), at the state of art, any author has specifically dealt with this issue.

4. The use of MASS and the need for a new equilibrium between private and public involvement in assisting people in distress at sea: some conclusive reflections

If, from one side, the growing use of automation technologies may contribute to make the marine domain a safer environment, from the other side, remote navigation causes a reduction in the capacity of providing assistance to individuals eventually facing an emergency at sea. Like it or not, the reaching of an equilibrium between these two sides of the same coin is one of the most relevant challenges the international maritime community is going to face in the close future. In fact, while the use of MASS is quite limited today, it is highly foreseeable that it will rapidly increase⁴⁴⁵. At the sametime, this innovation will not exhaust the need for assistance at sea; actually, there is no sign that the phenomenon of mixed migratory flows is sharply reducing⁴⁴⁶. Put differently, it is reasonable to predict that in the next future *manned and unmanned vessels will share the seas*: the typical risks related to (manned) navigation, therefore, will continue to exist even in the “era of autonomous navigation”.

In this respect, chapter III of the thesis has provided an overview concerning the potential impact of the use of unmanned ships on the applicability of the existing international rules on assistance at sea. This analysis leads to some relevant conclusions.

First, it has been noted that the production of MASS can potentially downgrade the shipmasters’ factual capacities in providing assistance to people in distress at sea⁴⁴⁷. Then, remembering that the latter are obliged to «do everything possible *within the capabilities and limitations of the ship*»⁴⁴⁸, it is reasonable to conclude that the unmanned nature of the MASS may *legitimately* reduce the intensity of the level of intervention to be performed by remote operators.

Second, it has been argued that the registration into national registers of MASS incapable of rescuing appears to be in potential conflict with flag States’ obligations set

⁴⁴⁵ PETRIG A., *Autonomous Offender Ships and International Maritime Security Law*, cit., p. 31. On the same advice, see VOJKOVIC G.; MILENKOVIC M., *Autonomous Ships and Legal Authorities of the Ship Master*, cit., p. 335.

⁴⁴⁶ For more information on the spread of migration flows in the contemporary ages, see to website <https://missingmigrants.iom.int/region/mediterranean>.

⁴⁴⁷ See section 3(b) of this chapter.

⁴⁴⁸ IMO, *Guidelines on the Treatment of Persons Rescued at Sea*, cit., p. 5 (emphasis added).

by the UNCLOS⁴⁴⁹. Since the Convention obliges flag States to ensure that the masters of their national vessels shall *rescue* people in distress at sea⁴⁵⁰, the decision to grant the national flag to ships that, from the very moment of their construction, are not designed for embarking people in distress at sea, seems to contrast with the Law of the Sea.

Third, even coastal States' duties of assistance are challenged by the use of unmanned MASS⁴⁵¹. In particular, it may be predicted that the increasing circulation of unmanned ships could complicate the performance of the duty to configure «adequate and effective»⁴⁵² SAR national services.

Putting all these conclusions together, it emerges that the ergonomic revolution brought by autonomous navigation has potential repercussions on the functioning of the legal framework on assistance at sea. At the state of the art, of course, it is not possible to well comprehend which specific legal evolutions could come in this respect; the current absence of practice does not allow the author to go any further rather than what was reported in the previous pages. That being said, however, the actual status of uncertainty does not preclude the possibility to advance, at least, some hypothesis: the last pages of this chapter will report the position of the author about what it can be reasonably expected in the next years.

From a theoretical perspective, two alternative consequences arising from MASS technology may potentially occur.

First, States could prohibit the construction and the use of unmanned ships incapable of rescuing people in distress at sea. Since the international legal framework on assistance at sea strongly relies on the concrete involvement of the master, the analyzed technical advancement may undermine the functioning of the entire normative system. Therefore, States could prohibit the registration of these ships into their national registers and the circulation within their national waters. Broadly speaking, *only MASS designed for rescuing people at sea should be legitimate under International Law*⁴⁵³.

This categorical solution would be surely functional to defuse the new threats brought by the technology of automation. However, it is difficult – and perhaps even

⁴⁴⁹ See section 3(c)(i) of this chapter.

⁴⁵⁰ Precisely, see art. 98,1 of UNCLOS.

⁴⁵¹ See section 3(d)(i) of this chapter.

⁴⁵² UNCLOS, art. 98,2.

⁴⁵³ In section 3(c)(i) of this chapter, it has been noted that the construction of unmanned ships able to rescue, while more expensive, is technically achievable.

unreasonable – to envisage the consolidation of this preclusive orientation. Indeed, it cannot be forgotten that, nowadays, States are more and more interested in developing this technological development because it potentially offers big opportunities for the shipping industry. Therefore, it seems quite unrealistic to presume that States would ban this technological advancement simply because of the MASS incapability to rescue persons *eventually* found in distress at sea: while the benefits arising from the process of automatization of navigation are concrete, this last occurrence, albeit foreseeable, is merely potential. Moreover, this study has emphasized that, in terms of maritime safety, the innovation of remote control tends to reduce the risk of casualties deriving from human mistakes, which are the most frequent origin of maritime accidents. Therefore, it is highly improbable that the observed legal inconsistencies will slow down the progressive establishment of MASS on the international scene.

Beyond this first, categorical, solution, an alternative (and more predictable) path could be taken by the international community in this regard: the use of MASS would be largely tolerated.

This fact would strongly innovate the existing international legal framework on assistance at sea. Accordingly, the use of ships incapable of rescuing would exacerbate the *ongoing process of the reduction of the role played by individuals in favour of a more intense and concerted intervention carried out by State authorities*.

Historically, the international rules on assistance at sea were finalized to empower a spirit of *solidarity among people at sea*; saving the life of a “colleague” in distress was, above all, an intrinsic element of the maritime culture; within this scenario, States were not particularly called into question. As noted by prof. Munari:

«[...] at the time in which the customary rule was formed, *persons going at sea were a separated community from their nation state*. This community knew the perils each of its members was facing on a daily basis and was prepared to offer solidarity in case of distress at sea, because this solidarity would be reciprocated among all the community’s members»⁴⁵⁴.

⁴⁵⁴ MUNARI F., *Search and Rescue at Sea: Do New Challenges Require New Rules?*, cit., p. 64 (emphasis added).

More recently, then, States have progressively empowered their governance into the marine domain. Time after time, they have started adopting international rules aimed at actively protecting the subjective element of navigation in distress at sea.

Moreover, this evolutive process has been further enhanced by the progressive strengthening of the international regime of Human Rights Law, whose norms are not “hydrophobic” and they surely find application at sea⁴⁵⁵. Furthermore, the dramatic increase of mixed maritime migration flows has further accelerated this evolutive process: the mere assistance rendered by private vessels has proved its inadequacy in facing this complex phenomenon⁴⁵⁶. For all these reasons, from the second half of the twentieth century, States have progressively assumed their responsibility in the protection of human lives at sea⁴⁵⁷.

In any case, this trend did not cancel the existence of the previous, solidaristic, duties of assistance pending upon the shipmasters⁴⁵⁸; at the state of art, indeed, new and old provisions compose a complex and variegated legal framework, whose functioning, depends on a delicate equilibrium between the contextual involvement of private and public forces.

In this respect, it is reasonable to predict that the admission of the use of unmanned ships will play a decisive role in the process of reaching a new balance between these two sides; precisely, it is here advanced that *the international regulation of assistance at sea will be even more polarized by the prominent role of States, at the expense of a decreasing relevance of the shipmasters' conducts.*

As many times remarked during the development of this chapter, the final goal of the rules understudy is to protect the life of people in distress at sea. To concretely ensure this ambitious goal, therefore, the lowering of the level of assistance guaranteed by the masters shall necessarily correspond to an equal and opposite growth of the involvement of the States. To use a metaphor, the relationship between the involvement

⁴⁵⁵ See notes 141 and 142 of this chapter.

⁴⁵⁶ NERI K., *The Challenges Faced by Private Ships in Large-scale Rescue Operations at Sea*, cit., p. 108.

⁴⁵⁷ See note 229 of this chapter.

⁴⁵⁸ MUNARI F., *Search and Rescue at Sea: Do New Challenges Require New Rules?*, cit., p. 68: «Solidarity thus extends from the seafarers' community to a broader community that includes coastal state citizens who benefit from navigation. As long as transportation by sea or fishing activities “serve” the needs of a coastal state's population, it seems equitable and fair that, together with other first-best instruments to reduce perils for persons at sea, coastal states also organize SAR operations for those vessels and seafarers somehow “connected” with it, for example, those engaged in domestic maritime trades».

of these two different subjects is similar to two *communicating vessels*: when one is reducing, the other must necessarily increase. On the contrary, the overall level of assistance to ensure to people in distress at sea would decrease.

Applying this concept to the use of unmanned ships, the acceptance of the reduction of assistance potentially provided by remote operators should impose on States to empower their direct involvement in the protection of the life of people at sea. Otherwise, it would be hard to accept that the more technology develops, the less life of people at sea is protected: as it has been noted in this chapter, indeed, this paradox would be fully unacceptable not only from an ethical perspective, but also – and more importantly for this research – from a juridical one.

CONCLUSIONS

The way humans interact with the phenomenological world is the focal point around which International law is built. Even though States are traditionally conceived as the primary subjects of the international legal system, in the final instance, International Law speaks to individuals and governs their activities. Put differently, international rules are (more or less mediated) expressions of the normative power regulating the human behaviours at an international level.

Once acknowledged that the way individuals perform their actions is the factual reality upon which International Law finds its final justification, it derives that, every time the technological progress innovates the “way of doing things”¹, International Law is subject to change². In this respect, *the technology of automation is bringing unexplored legal challenges*.

The rise of automation in the shipping field is a tremendous innovation. This technology revolutionizes the ergonomics of maritime human behaviours, undermining the common-sense perception of what “navigation” means and how it is performed. This technical advancement necessarily puts to the test the capacity of the existing norms to properly regulate the performance and the governance of navigation.

Within this evolving scenario, this thesis has observed the international legal implications emerging from the fast-growing use of autonomous means of maritime transport. Starting from the analysis carried out in the course of the entire research, these last pages report some final considerations aimed at framing this work into a longer-term perspective.

In the first chapter of the thesis, it has been explained that the use of MASS has a strong impact on the international regulation on safety of navigation. Accordingly, these norms are substantially modelled on the “traditional” performance of maritime behaviours; in few words, they have been drafted for regulating the ergonomics of

¹ FRANKLIN U. M., *The Real World of Technology*, cit., p. 9.

² SCOVAZZI T., *Considerazioni generali in tema di sicurezza della navigazione marittima* cit., p. 64-65: «Un sistema giuridico non è un elaborato astratto, ma uno strumento per risolvere problemi concreti. Il sistema è soggetto a una naturale evoluzione, graduale o bursca che sia, in conseguenza di dati di fatti estrinseci ad esso».

crewed vessels directly commanded by a shipmaster on board. As it has been noted before, the use of MASS gives rise to many issues concerning the applicability of the existing rules to these new means of maritime transport. In this regard, the “wavy” conclusions reached in chapter I show the «formidable» but not (always) «insurmountable»³ complexity of this topic. Broadly speaking, the innovative use of MASS challenges the international legal framework on safety of navigation in many shapes and forms, depending on the specific rules taken into account⁴. Precisely, while the norms on the quantity of sea-workers evolve over time, international rules on quality are not capable of well regulating the remote operators’ involvement in the performance of navigation; while some general principles provided in the COLREGs Convention may be also applied to unmanned and autonomous navigation⁵, others cannot be interpreted dynamically⁶.

Then, chapter II has analyzed the questions of whether and how the allocation of State jurisdiction over ships applies to MASS. In this respect, it has been concluded that the eventual operability of the existing rules on maritime jurisdiction to the use of MASS does not generate the same jurisdictional balance regulating traditional ships⁷. In particular, the allocation of enforcement powers over MASS appears to be fragmented in two parts: while the object-MASS and the people on board are under the jurisdiction of the respective port, coastal or flag States, remote operators seems to be subjected to the exclusive sovereign powers of the State in whose territory they are physically placed. This conclusion concretely attempts the validity of the principle upon which the allocation of State jurisdiction over the activity of navigation is built, namely the *fiction iuris* of “ship as a unit”⁸.

Conclusively, the third chapter of the thesis has investigated how the use of MASS challenges the scope and content of the existing norms on providing assistance to people in distress at sea. In this respect, this work has offered interesting results⁹ in support of

³ COITO J., *Maritime Autonomous Surface Ships. New Possibilities – and Challenges – in Ocean Law and Policy*, cit., p. 306.

⁴ See section 6 of the first chapter of the present research.

⁵ For example, the principle of good seamanship (see section 5(d) of the first chapter of this research).

⁶ Such as the principle regulating look-out activities (see section 5(d)(i) of the first chapter of this research).

⁷ See section 5 of the second chapter of the present research.

⁸ *M/V “Saiga”*, cit., para. 106.

⁹ See section 4 of the third chapter of the present research.

the idea that the use of unmanned ships will exacerbate the progressive reduction of the role covered by individuals, and so requiring a more intense intervention to be carried out by the governmental authorities. Precisely, the use of MASS of third and fourth levels of automation potentially downgrades the shipmasters' direct involvement in the process of providing assistance to people in distress at sea.

In synthesis, the rise of MASS stimulates the evolution of International Law and, in particular, of the Law of the Sea. The above-analyzed rules on safety of navigation (chapter I), on the allocation of maritime jurisdiction (chapter II) and on assistance at sea (chapter III) were designed to deal with a different "paradigm" for performing navigation; the emergence of a new factual reality asks for the development of the international regulation of navigation.

Generally speaking, when the international community is called to face the legal uncertainties brought by the rise of new technologies, it usually adopts two normative strategies:

«attraverso la *interpretazione* [1] delle regole vigenti in modo da estenderne l'utilizzo in situazioni non contemplate dal legislatore, sia mediante la conclusione di trattati o l'*adozione di strumenti normativi* volti a disciplinare questioni precedentemente non coperte dal diritto internazionale [2]»¹⁰.

These two paths – the *dynamic application of existing rules through interpretation*¹¹ (1) and the *creation of new rules* (2) – represent two complementary tensions animating every legal system, namely the *stability* and the *development* of the law. From one side, the law must be resilient enough to pose a solid and foreseeable basis for orienting the behaviours of the consociates; from the other side, it must evolve to regulate even new activities not existing before.

In the final instance, albeit they appear opposite to each other, the stability and the development of a legal system are just two sides of the same coin; indeed, they both aspire to provide *certainty* to the law. Together with the goal of securing justice, the fundamental task of every legal system (even International Law¹²) is to provide

¹⁰ RAGNI C., *Scienza, diritto e giustizia internazionale*, cit., p. 17.

¹¹ See section 5(a) of the first chapter of the present research.

¹² The analysis of the issue concerning the reach of legal certainty in International Law is addressed, among others, by TANZI A., *Introduzione al diritto internazionale contemporaneo*, cit., p. 43-44;

certainty to the consociates. From this perspective, the dynamic interpretation of the existing norms and the creation of new ones are two different strategies aimed at ensuring the same result: to make the law as certain as possible in response to the rise of new technology¹³.

According to what has been discovered during this thesis, the international community is now called to address the instabilities brought by the use of MASS to the international legal system. In other words, States should intervene to avoid the risk of the loss of legal certainty in the international regulation of navigation.

At the state of art, no conventional nor customary rules specifically govern the use of MASS. For what concerns the rules on safety of navigation, the MSC has already concluded the RSE, which, in the IMO's plan, should be the first step towards the drafting of a "MASS Code"¹⁴. To date, however, no hard law exists in this respect. Other than this document, no initiative has been taken by the international community with regard to other aspects analyzed in this thesis, such as the allocation of State jurisdiction over MASS and the duties of assistance in the era of autonomous navigation.

These (physiological) normative gaps may be partially filled through the recourse to the dynamic interpretation of the pre-existing international provisions. Accordingly, this thesis has tried to test the validity of the analogical application of the existing rules to the use of MASS. However, this process has not always led to successful results. As it has been noted in chapter II, for example, the pre-existing concept of "ship as a unit" is not capable of well-explaining the applicability of the jurisdictional balance over traditional ships to the use MASS¹⁵. Furthermore, for what concerns the regulation of assistance of people in distress at sea, the actual absence of specific rules poses many issues concerning the content of the duties on behalf of the flag and coastal States in this regard¹⁶.

KOSKENNIEMI M., *From Apology to Utopia: The Structure of International Legal Argument*, cit., p. 522-548; GIULIANO M., *La comunità internazionale e il diritto*, Padova, 1950, p. 307; LAUTHERPACHT H., *The Function of Law in the International Community*, Oxford, 1933, p. 424 ss.

¹³ This topic has been recently addressed by CROTOOF R., *Autonomous Weapons Systems and the limits of Analogy*, cit.

¹⁴ IMO RSE, p. 9.

¹⁵ See section 5 of the second chapter of the present research.

¹⁶ See section 4 of the third chapter of the present research.

The outlined legal uncertainties require a normative solution. Coherently to what has been already argued, these issues are not entirely absorbed by the dynamic application of the existing rules dealing with “traditional” navigation, making urgent the need for the *creation of new international provisions*¹⁷ *properly dedicated to the use of MASS*. Echoing the reflections expressed above, the dynamic interpretation of the existing rules and the creation of new ones are both necessary procedures; in the author’s view, the restoration of the *legal certainty* after the rise of MASS is to be achieved not only by protecting the *stability* of the legal system, but also empowering its normative *development*.

To date, the international community is not particularly solicitous in this respect. Beyond the IMO’s efforts in drafting new rules about MASS’ safety of navigation, the normative gaps on State jurisdiction and the protection of human life at sea are not particularly addressed by States. Furthermore, these legal issues are not even so much regarded as potential problems. Of course, the use of MASS is still a novelty, and, at the state of art, no international dispute concerning autonomous navigation has already emerged; therefore, States have not yet necessarily been confronted with the existing regulatory gaps in this regard.

Once acknowledged this, however, a peculiarity characterizing the international regulation of navigation is to be highlighted: notoriously, this normative field needs a greater level of regulatory predictability rather than other areas of International Law¹⁸.

As it is widely known, the shipping industry moves a large part of the global economy; 90% of the international trade occurs at sea¹⁹. Intuitively, the international business players acting in this field need certain and predictable legal premises. The lack of legal certainty in this respect largely discourages the economic and technological development of shipping transport.

From this perspective, public and private players need clear rules for continuing the path of implementation of autonomous navigation. As noted at the beginning of this work, indeed:

¹⁷ Whether of customary or conventional nature.

¹⁸ In this respect, read what is affirmed by DEAN P.; CLACK H., *Autonomous Shipping and Maritime Law*, cit., p. 89.

¹⁹ See note 19 of the introduction to the thesis.

«Even if the technology is perfected, companies are not going to use remote and autonomous ships unless the laws are changed to allow them to operate»²⁰.

Therefore, where existing rules fail to do so, new rules are to be drafted to ensure legal certainty to the system and to avoid the risks related to autonomous navigation *before* they become a solid reality²¹. Otherwise, the achievement of all the benefits related to the production of MASS – such as the greater economic efficiency, the greater safety of navigation and the higher environmental sustainability²² – would be strongly compromised.

Without certain rules, the most relevant effects coming from the use of autonomous ships would be the loss of predictability of State governance over the activity of navigation and the festering of old but still bleeding wounds of the Law of the Sea. Indeed, as this thesis has provided, the absence of clear rules concerning the use of MASS could lead to abuses and pathological consequences, such as the *lack of specific regulation about safety of navigation*²³, the *exponential growth of the phenomenon of flags of convenience*²⁴ and the *ineffective protection of human life of people in distress at sea*²⁵. In this respect, it seems preferable that the international community would take action to prevent this from happening, rather than waiting to address such consequences after they have occurred.

²⁰ LIU D., *Autonomous Vessel Technology, Safety, and Ocean Impacts*, in *The Future of Ocean Governance and Capacity Development, Essays in Honour of Elysabeth Mann Borghese*, CIT., p. 494 (see note 10 of the introduction of the thesis).

²¹ RINGBOM H.; COLLIN F., *Terminology and Concepts*, cit., p. 18.

²² See section 1 of the introduction to the thesis.

²³ See section 6 of the second chapter of the present research.

²⁴ See section 5 of the second chapter of the present research.

²⁵ See section 4 of the third chapter of the present research.

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